

# VNG/VLP

Hot Water - Electric Powered - Natural Gas or LP Heated

# LANDA®

## Operator's Manual

## Pressure Washer



### MODELS:

VNG4-20024A 1.109-563.0	VNG6-30024B 1.109-575.0
VNG4-20024B 1.109-564.0	VNG6-30024C 1.109-576.0
VNG4-20024C 1.109-565.0	VNG8-30024B 1.109-579.0
VNG4-20024H 1.109-568.0	VNG8-30024C 1.109-580.0
VNG4-30024A 1.109-569.0	VNG8-30024H 1.109-582.0
VNG4-30024B 1.109-570.0	VNG10-20024B 1.109-559.0
VNG4-30024C 1.109-571.0	VNG10-20024C 1.109-560.0
VNG4-30024H 1.109-574.0	

For the Landa Dealer nearest you, consult our web page at [www.landa.com](http://www.landa.com)

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8.913-939.0-AN 03/15/20

**Machine Data Label**

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Model: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Dealer: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Sales Representative: \_\_\_\_\_

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## How To Use This Manual

This manual contains the following sections:

- How to Use This Manual
- Safety
- Operations
- Maintenance
- Parts List

The HOW TO USE THIS MANUAL section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.

Model: _____
Date of Purchase: _____
Serial Number: _____
Dealer: _____
Address: _____
Phone Number: _____
Sales Representative: _____

The model and serial number of your machine is located on the back of the machine.

The SAFETY section contains important information regarding hazardous or unsafe practices of the machine. Levels of hazards are identified that could result in product damage, personal injury, or severe injury resulting in death.

The OPERATIONS section is to familiarize the operator with the operation and function of the machine.

The MAINTENANCE section contains preventive maintenance to keep the machine and its components in good working condition. They are listed in this general order:

- Spray Nozzles
- Unloader Valves
- Winterizing Procedure
- High Limit Hot Water Thermostat
- Pumps
- Heating Coil
- Gas Valve Regulator Adjustment
- Propane Gas
- Burner Features
- Smart Relay Instructions
- Preventative Maintenance
- Oil Change Record
- Troubleshooting - Burner
- Troubleshooting

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF** – column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **QTY** – column lists the quantity of the part used in that area of the machine.
- **DESCRIPTION** – column is a brief description of the part.
- **NOTES** – column for information not noted by the other columns.

*NOTE: If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.*

*NOTE: The manual part number is located on the lower right corner of the front cover.*

## Introduction & Safety Information

Thank you for purchasing this Pressure Washer. We reserve the right to make changes at any time without incurring any obligation.

### Owner/User Responsibility:

The owner and/or user must have an understanding of the manufacturer's operating instructions and warnings before using this pressure washer. Warning information should be emphasized and understood. If the operator is not fluent in English, the manufacturer's instructions and warnings shall be read to and discussed with the operator in the operator's native language by the purchaser/owner, making sure that the operator comprehends its contents.

Owner and/or user must study and maintain for future reference the manufacturers' instructions.

The operator must know how to stop the machine quickly and understand the operation of all controls. Never permit anyone to operate the engine without proper instructions.

### SAVE THESE INSTRUCTIONS

**This manual should be considered a permanent part of the machine and should remain with it if machine is resold.**

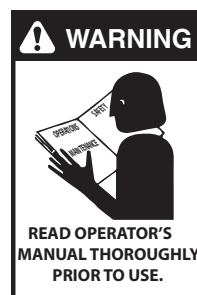
**When ordering parts, please specify model and serial number. Use only identical replacement parts.**

**This machine is to be used only by trained operators.**

## Important Safety Information

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.**

**AVERTISSEMENT: Si ces directives ne sont pas suivies à la lettre, un incendie ou une explosion pourrait survenir et entraîner des dommages à la propriété, des lésions corporelles ou la mort.**



**WARNING: To reduce the risk of injury, read operating instructions carefully before using.**

**AVERTISSEMENT: Pour réduire le risque de blessures, lire attentivement les instructions de fonctionnement avant l'utilisation.**

1. Read the owner's manual thoroughly. Failure to follow instructions and warnings could cause malfunction of the machine and result in death, serious bodily injury and/or property damage.
2. Know how to stop the machine and bleed pressure quickly. Be thoroughly familiar with the controls.
3. Stay alert — watch what you are doing.
4. Use only your hand to push in or turn the gas control knob. Never use a tool. If the knob will not push in or turn by hand, don't try to repair it; call a qualified service technician.
5. All installations must comply with local codes. Contact your electrician, plumber, utility company or the selling dealer for specific details. This product should only be connected to a power supply protected by a GFCI.



**DANGER: Keep wand, hose, and water spray away from electric wiring or fatal electric shock may result.**

**DANGER: Garder la lance, le boyau et le jet d'eau à l'écart de tout câblage électrique ou des chocs électriques mortels pourraient survenir.**

6. To protect the operator from electrical shock, the machine must be electrically grounded. It is the responsibility of the owner to connect this machine to a grounded receptacle of proper voltage and amperage ratings. Do not spray water on or near electrical components. Do not touch machine with wet hands or while standing in water. Always disconnect power before servicing.

## Safety

**DANGER:** Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the product - if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use any type of adapter with this product.

**DANGER:** Une mauvaise connexion du conducteur de terre de l'équipement peut entraîner un risque d'électrocution. Vérifier auprès d'un électricien qualifié ou du personnel d'entretien si vous avez des doutes quant à savoir si la sortie est correctement mise à la masse. Ne pas modifier la fiche fournie avec le produit - si elle n'entre pas dans la sortie, faire installer une sortie appropriée par un électricien qualifié. ne jamais utiliser un adaptateur avec ce produit.



**WARNING:** Flammable liquids can create fumes which can ignite, causing property damage or severe injury.

**AVERTISSEMENT:** Des liquides inflammables peuvent produire des vapeurs qui peuvent s'enflammer, causant ainsi des dommages à la propriété ou des blessures graves.

**WARNING:** Risk of explosion — Operate only where open flame or torch is permitted. Do not spray flammable liquids.

**AVERTISSEMENT:** Risque d'explosion- Utiliser uniquement dans des endroits où l'utilisation d'une flamme nue ou d'une torche est permise. Ne pas pulvériser de liquides inflammables



**WARNING:** Risk of fire — Do not change tanks when the product is operating or still hot.

**AVERTISSEMENT:** Risque d'incendie- Ne pas changer les réservoirs pendant que le produit est en marche ou encore chaud.

**WARNING:** Use vapor fuel only.

**AVERTISSEMENT:** Utiliser des vapeurs de carburant seulement.

- Gas appliances shall be installed only in locations where combustible dusts and flammable gases or vapors are not present. Do not store or use gasoline near this machine.

- Keep operating area clear of all persons.

**WARNING:** In the event of a pilot outage, wait at least five minutes to clear out any gas before relighting.

**AVERTISSEMENT:** En cas de panne de la veilleuse, attendre au moins cinq minutes pour permettre au gaz de se dissiper avant de rallumer.



**WARNING:** High pressure spray can cause paint chips or other particles to become airborne and fly at high speeds. To avoid personal injury, eye, face, hand and foot safety devices must be worn.

**AVERTISSEMENT:** Un jet haute pression peut écailler la peinture ou provoquer l'émission d'autres particules dans l'air et leur projection à hautes vitesses, Pour éviter les lésions corporelles, une protection des yeux, du visage, des mains et des pieds doit être portée lors de l'utilisation de cet équipement.

- Wear properly rated eye protection such as safety goggles or face shield while spraying. (Safety glasses do not provide full protection) (Des lunettes de sécurité ne fournissent pas une protection complète.)



**CAUTION:** Hot discharge fluid. Do not touch or direct discharge stream at people or animals or severe injury or death will result.

**ATTENTION:** Liquide de décharge chaud. Ne pas toucher ou décharger directement le jet vers des personnes ou des animaux, car cela risquerait de causer des blessures graves ou même la mort.

**WARNING:** This machine produces hot water and must have insulated components attached to protect the operator.

**AVERTISSEMENT:** Cette machine produit de l'eau chaude et doit comporter des composants isolés attachés pour protéger l'opérateur.



**WARNING:** Risk of injury. Hot surfaces can cause burns. Use only designated gripping areas of spray gun and wand. Do not place hands or feet on non-insulated areas of the pressure washer.

**AVERTISSEMENT:** Risque de blessures. Les surfaces chaudes peuvent causer des brûlures. Utiliser unique-

ment les zones de prise désignées du pistolet pulvérisateur et de la lance. Ne pas placer les mains ou les pieds sur des endroits non isolés de la laveuse à pression.

- To reduce the risk of injury, close supervision is necessary when a machine is used near children. Do not allow children to operate the pressure washer. **This machine must be attended during operation.**



**WARNING:** Grip cleaning wand securely with both hands before starting. Failure to do this could result in injury from a whipping wand.

**AVERTISSEMENT:** Agripper la lance de nettoyage avec les deux mains avant de commencer. Le non-respect de cette consigne pourrait mener à des blessures causées par le mouvement violent de la lance.

- Never make adjustments on machine while in operation.
- Be certain all quick coupler fittings are secured before using pressure washer



**WARNING:** High pressure developed by these machines will cause personal injury or equipment damage. Keep clear of nozzle. Use caution when operating. Do not direct discharge stream at people or animals, or severe injury or death will result.

**AVERTISSEMENT:** La haute pression générée par ces machines

causera des lésions corporelles ou des dommages à l'équipement. Se tenir à l'écart de la buse. Faire preuve de prudence lors de l'utilisation. Ne pas décharger directement le jet vers des personnes ou des animaux, car cela risquerait de causer des blessures graves ou même la mort.



**WARNING:** Protect machine from freezing.

**AVERTISSEMENT:** Protéger la machine contre le gel.

- To keep machine in best operating conditions, it is important you protect machine from freezing. Failure to protect machine from freezing could cause malfunction of the machine

and result in death, serious bodily injury, and/or property damage. Follow storage instructions specified in this manual.



**DANGER:** Risk of asphyxiation. Use this product only in a well ventilated area.

**DANGER:** Risque d'asphyxie. Utiliser ce produit uniquement dans un endroit bien ventilé.

- Avoid installing machines in small areas or near exhaust fans. Adequate oxygen is needed for combustion or dangerous carbon monoxide will result.
- Manufacturer will not be liable for any changes made to our standard machines or any components not purchased from us.
- The best insurance against an accident is precaution and knowledge of the machine.



**WARNING:** Be extremely careful when using a ladder, scaffolding or any other relatively unstable location. The cleaning area should have adequate slopes and drainage to reduce the possibility of a fall due to slippery surfaces.

**AVERTISSEMENT:** Faire preuve d'une extrême prudence au moment d'utiliser une échelle, des

échafaudages ou toute autre surface relativement instable. La zone de nettoyage doit avoir une pente et un drainage adéquats pour réduire la possibilité d'une chute due à une surface glissante.

- Do not overreach or stand on unstable support. Keep good footing and balance at all times.
- Do not operate this machine when fatigued or under the influence of alcohol, prescription medications, or drugs.

**WARNING:** Use vapor fuel only.

**AVERTISSEMENT:** Utiliser des vapeurs de carburant seulement.

- The LP models are designed to run on vapor propane fuel. Do not use liquid fuel. Have a qualified serviceman install and service your equipment.
- Never expose a spark or flame where there may be unburned gas present.

## Safety

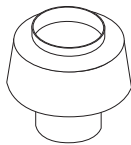
21. Install this machine about 2 feet from wall to provide adequate ventilation and servicing space. This equipment incorporates parts such as snap switches or similar parts that tend to produce arcs or sparks. Therefore, when located in a garage, it should be in a room or enclosure provided for the purpose or should be installed 18" (457mm) or more above the floor.

**WARNING: To reduce the risk of electric shock, disconnect all electrical connections and shut-off gas valve before servicing.**

**AVERTISSEMENT: Pour réduire le risque de choc électrique, débrancher toutes les connexions électriques et la soupape de coupure des gaz avant d'effectuer des opérations d'entretien.**

22. Install this machine on non combustible flooring.
23. Do not allow acids, caustic or abrasive fluids to pass through the pump.
24. Never run pump dry or leave spray gun closed longer than 3 minutes.
25. Exhaust gases should not be vented into a wall, a ceiling or a concealed space of a building. A draft diverter must be installed to prevent down draft and to allow cooling of exhaust temperatures. Down draft diverters shall be installed in the vents and located at a distance from the pressure washer stack to achieve maximum draft of 36" minimum. Exhaust gases that exceed 470°F (243°C) are not suitable for connection to Type B gas vents.

### Example of Down Draft Diverter for Gas Fired Machines



**WARNING: Do not spray machine or any people, animals, or electrical parts.**

**AVERTISSEMENT: Ne pas vaporiser sur la machine ou les gens, les animaux ou les pièces électriques.**



**Follow the maintenance instructions specified in the manual.**

## Propane Tank Safety Instructions

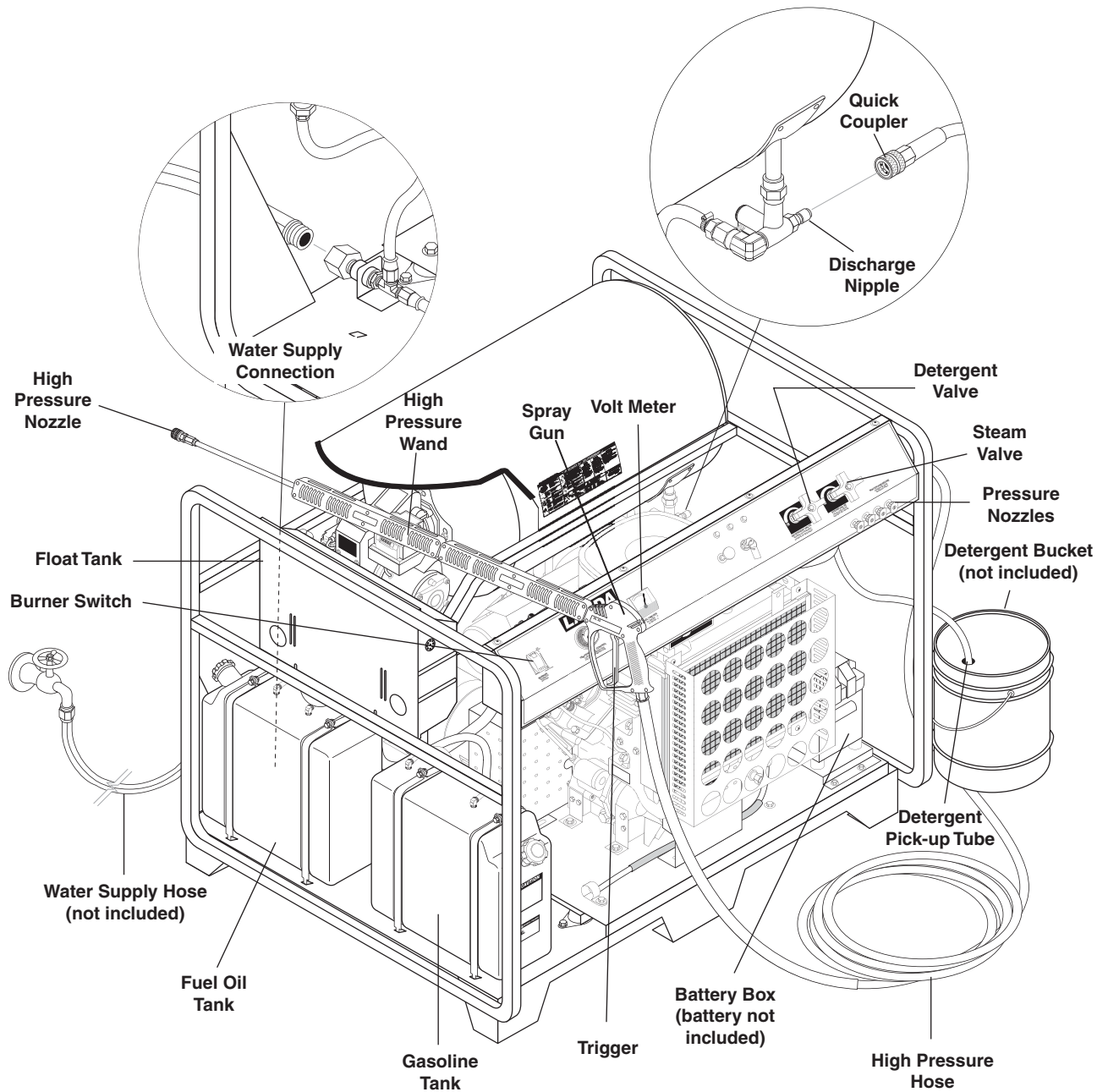
**CAUTION: Only qualified persons should fill your LP-gas containers.**

**ATTENTION: Les contenants de gaz de pétrole liquéfié doivent être remplis uniquement par des personnes qualifiées.**

1. Never allow your LP-gas container to be filled above the maximum safe level as indicated by a scale or the fixed liquid level gauge (outage). Do not use the visible gauge for filling.
2. Do not use a wrench or pliers to close the service valve or fixed liquid level gauge. These valves are designed to be closed leak-tight by hand or screwdriver as appropriate. If wrenches are necessary to stop a leak, the valve needs repair or replacement.
3. When tightening the POL Nut (left hand thread) on the service valve, draw it up snug with a proper wrench. This is a machined male brass fitting which seats securely against a female seat in the POL valve – no pipe dope is necessary. Acme/Type 1 valves have right handed threads which are secure when hand tight, and on the Quick Disconnect/Type 2 Valves, the male connection is inserted into the female connection on the cylinder valve. (No wrenches required for both the Acme and the Quick Disconnect.)
4. When using container, slowly open service valve all the way. Listen to the regulator. A continuous hiss may indicate a leak or an open valve on an appliance.
5. Check all tank and the line connections periodically to be sure they are tight. When testing for leaks, use approved leak detector solution – not matches.
6. Make certain your container is properly fastened in place.
7. Turn container with open part of container guard towards frame. This protects valves and regulator against flying rocks and mud. Transport container in the proper position in which it is used, with the valves closed and POL Plugs inserted for POL Valves or Dust Caps for Acme Valves. Secure the tank against falling or rolling.
8. Check for leaks after connecting. Apply approved leak detector solution to connection, turn off all burners and pilots, and open service valve. Leaks will be detected by the growth of the bubbles. If bubbles grow, tighten or repair the connection as needed. Repeat leak test until problem is corrected.
9. LP-gas is normally non-corrosive – you need not worry about the inside of your container. However, the outside should be kept free from rust by a periodic coat of paint in a light reflective color. It is very important to inspect and maintain the bottom and foot ring on the container.
10. Do not store LP-gas containers indoors or in enclosed areas. Do not expose LP-gas container to heat. Always store with service valve closed and plugged as required.
11. Do not attempt to repair any containers, container valves, regulator or appliances by yourself. Use only trained certified LP-gas service personnel to perform repairs.



**Component Identification**



## Operations

### Installation

Place machine in a convenient location providing ample support, drainage and room for maintenance.

### Location

The location should protect machine from damaging environmental conditions, such as wind, rain and freezing.

1. The machine should be run on a level surface where it is not readily influenced by outside sources such as strong winds, freezing temperatures, rain, etc. The machine should be located considering accessibility for the replacing of components and the refilling of detergents, adjustments and maintenance. Normal precautions should be taken by the operator of the machine to prevent excess moisture from reaching the machine.
2. It is recommended that a partition be made between the wash area and machine to prevent direct spray from the spray gun from coming in contact with the machine. Excess moisture reaching the power unit or electrical controls will reduce the machine's life and may cause electrical shorts.
3. During installation of the machine, beware of poorly ventilated locations or areas where exhaust fans may cause an insufficient supply of oxygen. Sufficient combustion can only be obtained when there is a sufficient supply of oxygen available for the amount of fuel being burned. If it is necessary to install a machine in a poorly ventilated area, outside fresh air may have to be piped to the burner and a fan installed to bring the air into the area.
4. Do not locate near any combustible material. Keep all flammable material at least 20 feet away.

Allow enough space for servicing the machine.

Local code will require certain distances from floor and walls. (Two feet away should be adequate).

**WARNING: Avoid small areas or near exhaust fans.**

**AVERTISSEMENT: Éviter les petites superficies ou les surfaces à proximité des ventilateurs d'extraction.**

### Gas Codes

Confer with local gas company and with proper municipal officials regarding any specific code or regulations governing the installation. The installation must conform to local codes (NFPA 54).

### Electrical

The machine, when installed, must be electrically grounded in accordance to local codes. Check for proper power supply using a volt meter; check the serial plate for the correct requirements.

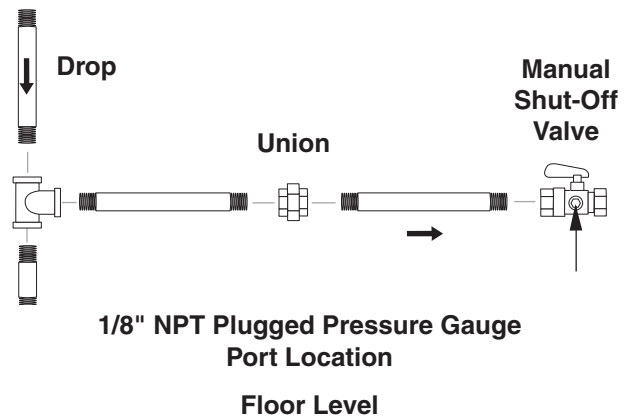
### Gas Piping

This machine shall be rigidly connected to the gas piping outlet and equipped with external manual shut-off valves adjacent to such machine. All gas piping shall be approved and installed in accordance with the Uniform Mechanical Code.

Install a gas union in the gas line adjacent to and upstream from the control manifold and downstream from the manual main shut-off valve. A 1/8" NPT plugged tapping accessible for test gauge connection shall be installed immediately upstream of the gas supply connection for the purpose of determining the gas supply pressure to the burner, and to prevent damage to gas valve.

If a manual gas shut off valve is not in the gas supply line within six feet of the machine and in an accessible location, one shall be installed.

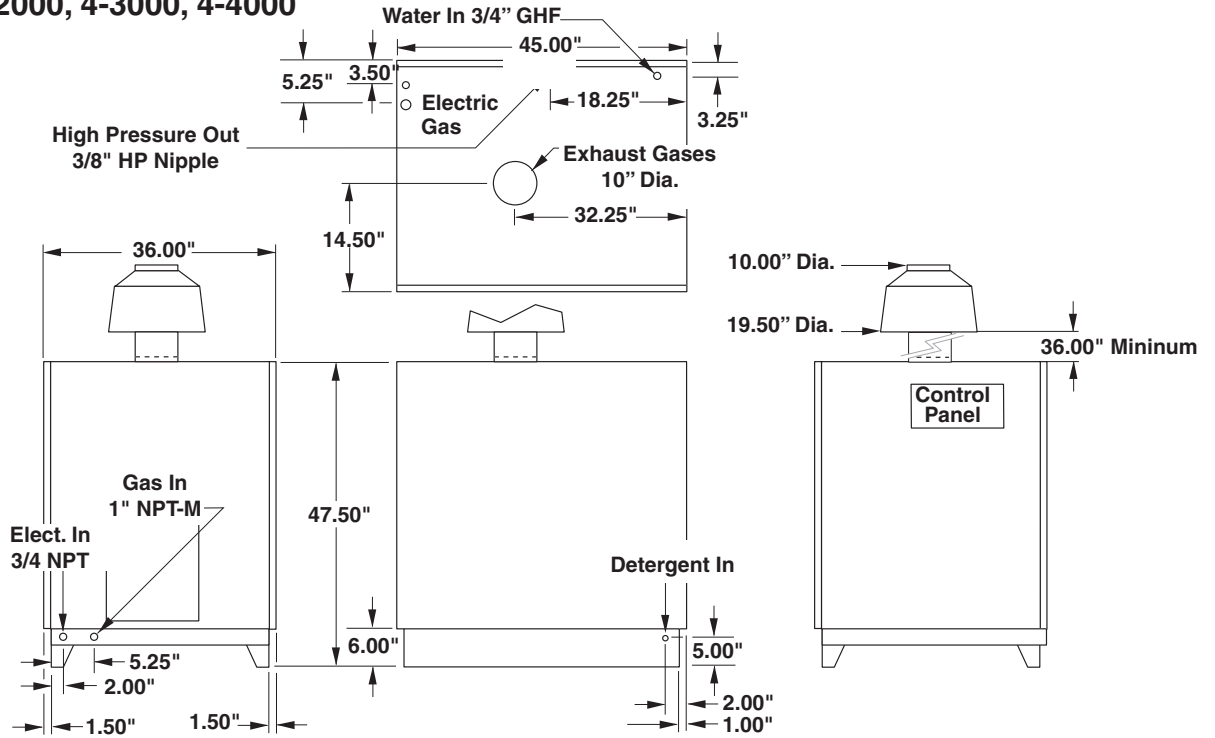
### Union Location



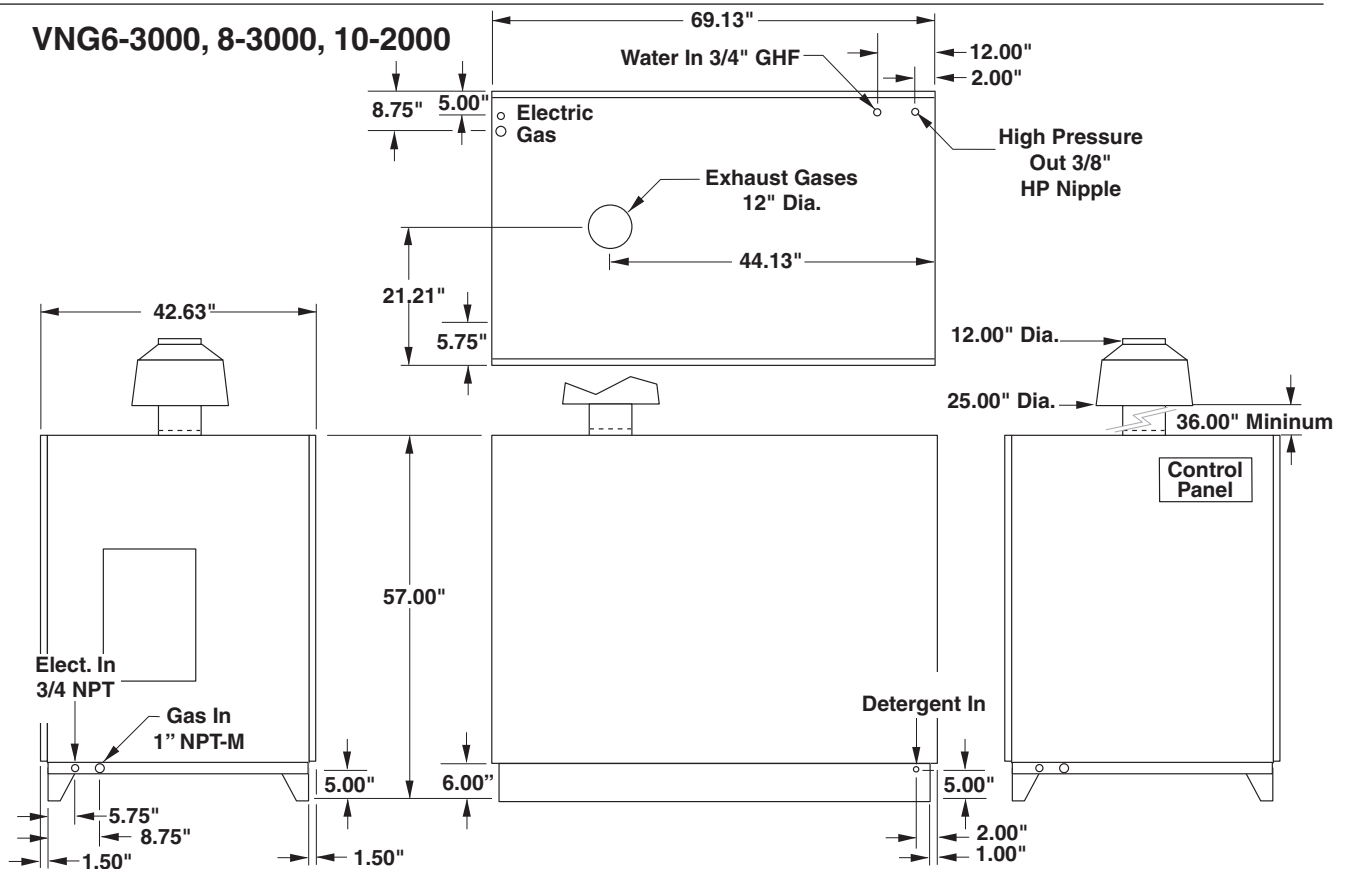
### Union Connection

The following pipe sizes are just recommendations. Always consult a local plumber and venting contractor for local codes and regulations during installation.

**VNG4-2000, 4-3000, 4-4000**



**VNG6-3000, 8-3000, 10-2000**



## Operations

### Pipe Sizing Chart for Natural Gas

The following chart is based on gas pressure in the range 0-0.5 psi, specific gravity of 0.6 and pressure loss of 0.5" W.C. Numbers are for straight schedule 40 pipe; fittings further reduce capacity. For example, in 1" size, an elbow is equivalent to about 2.6 feet of pipe and a tee is equivalent to about 5.2 feet of pipe.

**Maximum capacity of pipe in cubic feet/hr of natural gas (Multiply values by 1000 to get nominal BTU/hr capacity).**

Length of Pipe (ft.)	Iron Pipe Size				
	3/4"	1"	1 -1/4"	1- 1/2"	2"
10	360	680	1400	2100	3950
20	250	465	950	1460	2750
30	200	375	770	1180	2200
40	170	320	660	990	1900
50	151	285	580	900	1680
60	138	260	530	810	1520
70	125	240	490	750	1400
80	118	220	460	690	1300
90	110	205	430	650	1220
100	103	195	400	620	1150
150	84	160	325	500	950
200	72	135	280	430	800

### LP-Gas (Liquid petroleum gas or propane)

LP-gas is gas compressed into liquid form for easy transportation and storage. It is also known as propane or bottle gas. (Propane tanks are not supplied with this equipment.)

LP-gas is flammable, is always contained under pressure and the liquid can freeze skin. Therefore, in the interest of safety, it is important to understand the basic facts about LP-gas and LP-gas containers.

Federal DOT (Department of Transportation) regulations require periodic inspections and re-qualifications of cylinders. DO NOT USE damaged or rusted containers.

DO NOT store LP-gas containers indoors or in enclosed areas. Do not expose LP-gas container to heat. Always store with service valve closed and plugged as required.

**CAUTION: Use LP-gas containers in proper position.**

**ATTENTION: Utiliser des contenants de gaz de pétrole liquéfié en position appropriée.**

Most LP-gas pressure washer heaters are designed to operate on LP-gas vapor only. Therefore, all LP-gas containers designed for vapor service must be transported, installed and used in the proper position. Do not

transport, install or use a vertical cylinder in a horizontal or upside down position. Proper care must be taken to position a horizontal container in the correct position for vapor withdrawal. Liquid LP-gas could enter the system designed for vapor only, possibly creating a hazardous condition.

Always use a POL plug installed on a POL valve or a dust cap on an ACME/Type 1 valve when transporting or storing disconnected containers (full or empty). Check for leaks after connecting. Apply approved leak detector solution to connection, turn off all burners and pilots and open service valve. Leaks will be detected by the growth of bubbles. If bubbles grow, tighten or repair the connection as needed. Repeat leak test until problem is corrected.

Check all tank and the line connections periodically to be sure they are tight. When testing for leaks, use approved leak detector solution — not matches.

**Improved Regulation:** The second stage regulator receives a relatively uniform pressure from the first stage regulator. This helps the second stage regulator to maintain appliance pressure at a nearly constant 11" W.C.

### Filling the LP-Gas Container

**Only qualified persons should fill your LP-gas containers.**

**CAUTION: Overfilling is hazardous!**

**ATTENTION: Le remplissage excessif est dangereux!**

DO NOT allow your LP-gas container to be overfilled. Stop filling when liquid appears at the fixed level gauge. Bleed off excess propane in a safe area. Most LP-gas containers are equipped with a fixed liquid level gauge which contacts the liquid level at 80% of container capacity, allowing 20% for expansion. LP-gas containers not equipped with a fixed liquid level gauge can only be filled by weight.

In cold climates, in order to keep vaporization of LP-gas at the highest level, keep the fuel levels above 50%.

### Propane Tank Disposal:

Propane tanks present a real danger in the waste stream, so it is essential to properly dispose of old tanks so they do not injure you or sanitation workers. The best way to dispose of unused propane tanks is by calling a propane company to pick it up. Propane tanks are not picked up by garbage collectors, and improper disposal is illegal in some areas. If a propane tank is unfit for service, one should contact a propane company.

## Combustion and Ventilation Air

Properly sized vents are vital for the safe and efficient operation of a pressure washer installed in a confined space. When combustion and ventilation air are supplied from inside the building, each opening must have an area of one square inch for every 1,000 BTUH input.

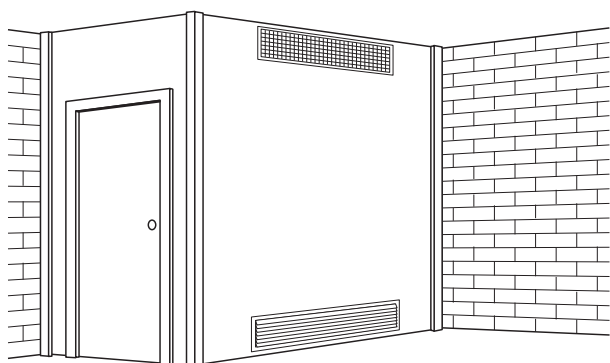
When combustion air is supplied from the outside, each opening must have an area of one square inch for every 2,000 BTUH for horizontal ducts and one square inch for every 4,000 BTUH for vertical ducts (refer to NFPA 54).

The purpose of venting a gas pressure washer is to completely remove all products of combustion and to vent gasses to the outside air without condensation in the vent or spillage at the draft hood (except in cases of downdraft or poor stack conditions). To assure correct venting, use a strong, gas-tight insulated pipe with a cross section equal to that of the flue collar or draft hood outlet and of sufficient vertical height.

During vent installation, avoid sharp turns, long horizontal runs and improper pitches. Maintain proper support of vent connectors and joints, observe clearances from all combustibles and top the vent outlet with an approved cap.

Type "B", due to its temperature rating, can only be used with natural draft pressure washers. A "B" vent is designed for exhaust temperatures not to exceed 470°F (245°C).

All venting installations must conform to local codes. In the absence of local codes, refer to "National Fuel Gas Code" NFPA 54 and be constructed of materials approved by the Uniform Building Code.



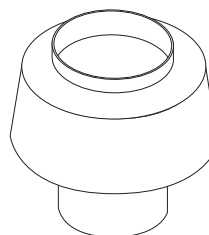
**Illustration showing air openings necessary to supply air for combustion when installed in an enclosed room.**

The pressure washer includes a collar that will mate with standard HVAC ducting. The user will be responsible for installation of an exhaust stack. The exhaust stack should include a Draft Diverter/Inducer, Damper,

Sampling Port and Rain Cap. An adapter can be installed between the collar and stack to adjust the diameter from 10" to 8" or 12" to 10".

Size the stack according to the following (see also applicable local and national standards regarding installation of gas-fired appliances):

- 3.5 to 4.4 gpm    10" Collar    8" Stack
- 4.5 to 5.5 gpm    10" Collar    10" Stack
- 6.3 gpm            12" Collar    10" Stack
- 8 – 10 gpm        12" Collar    12" Stack



### Draft Diverter Required

<b>8.717-728.0</b>	<b>8"</b>
<b>9.801-040.0</b>	<b>10"</b>
<b>8.717-730.0</b>	<b>12"</b>

**Draft Diverter/Hood** The draft required to vent combustion gases is created by the heat inside the pressure washer coil. A draft diverter helps improve draft into the stack without pulling more air through the combustion box and decreasing combustion efficiency. The draft diverter can also help prevent back drafting that can inhibit combustion. The draft diverter should be installed a minimum of 36" above the flue collar.

**Power Vent (Draft Inducer)** If this machine is going to be installed on a 90° or extended exhaust vent run length which may restrict air flow it is recommended that a contractor install a power vent. When a contractor has found it impossible to vent straight through the roof power venting is recommended to help eliminate exhaust restriction of this natural draft machine. This draft inducer (power vent) must be installed by a licensed contractor who can calculate size, operation connections and associated dampeners. Since we are a manufacturer and not a licensed contractor and as such we are unable to make recommendations for suitable make and model of power vents and compliance with local building codes.

**Damper** An exhaust stack can reduce thermal efficiency by drawing in too much combustion air. This can be controlled by adding a damper just below the draft diverter. 8.753-473.0 - 8" Damper, 8.753-474.0 -10" Damper, 8.753-418.0 - 12" Damper.

*NOTE: Closing the damper can create high levels of CO in the exhaust. Adjustments to the damper should only be performed by a trained technician using a flue gas analyzer. If an analyzer is not used the damper should be set in the fully open position.*

## Operations

**Sampling Port** A port for sampling flue gases and measuring the flue gas temperature should be placed 18" above the flue collar. The port should be covered when sampling is not being performed. The size of the port should be only slightly larger than the probe for the flue gas analyzer.

**Rain Cap** A rain cap should be installed on top of the stack to prevent rain water, leaves and debris from entering the stack. Your installer may also recommend specialty caps for high wind areas or cold weather zones to help prevent back drafting. 8.717-731.0 - 10" Raincap, 8.717-732.0 - 12" Raincap

Vents penetrating ceilings or walls should be double-wall approved appliance vents and should be one to two inches from combustibles. Vents passing through enclosed spaces and vents exposed to the weather should also be the double-wall type. Sometimes vents have to be built of such great length that they come apart at their joints under their own weight. These should be screwed together at the joints with sheet metal screws, usually three per joint. If the inspector indicates that the vent is too close to combustibles, it may be necessary to chisel away some of the combustible or route the vent pipe around the combustible. The cross-sectional area of any flue shall not be less than the cross-sectional area of the flue vent connection outlet of machine.

### Water Source

The water source for the machine should be supplied by a 5/8" I.D. garden hose with a city water pressure of not less than 30 PSI. If the water supply is inadequate, or if the garden hose is kinked, the machine will run very rough and the burner will not fire.

### High Pressure Connection

Connect the high pressure hose by pulling the coupler collar back and then inserting it onto the discharge nipple. Secure it by pushing the collar forward.

Attach the wand into the spray gun using teflon tape on the pipe threads to avoid leaks.

### Inspection and Testing Gas Piping

The building structure should not be weakened by installing the gas piping. The piping should not be supported by other piping, but should be firmly supported with gas hooks, straps, bands or hangers. Butt or lap welded pipe should not be run through or in an air duct or clothes chute.

Before turning gas under pressure into piping, all openings from which gas can escape should be closed. Immediately after turning on gas, the system should be checked for leaks. This can be done by watching the 1/2 cubic foot test dial for 5 minutes for any movement or by soaping each pipe connection and watching for bubbles. If a leak is found, make the necessary repairs and repeat the above test.

Defective pipes or fittings should be replaced and not repaired. Never use a flame or fire in any form to locate gas leaks — use a soap solution.

After the piping and meter have been checked completely, purge the system of air. **DO NOT** bleed the air inside an enclosed room.

During pressure testing of the system at test pressures in excess of 1/2 PSIG, the pressure washer and its individual shut-off valve must be disconnected from gas supply piping system or damage to the gas valve will occur.

### Gas Pressure

The ideal incoming gas pressure is 11 w.c.i (water column inches). Minimum is 9 w.c.i., maximum is 14 w.c.i. or 1/2 PSIG. The correct operating manifold pressure for natural gas is 3.5 w.c.i. The operating manifold pressure for propane gas is 10 w.c.i. By adjusting the gas valve pressure regulator between 3 and 4 w.c.i. a side range can be achieved for natural gas.

If the desired input rating cannot be obtained within the above manifold pressure adjusting range, then the next size larger or smaller burner orifice should be used.

The gas pressure coming out of the regulator and going to the burner ring has been factory set for elevations of 0 to 2000 ft. Altitudes greater than 2000 ft will require adjustments to the gas manifold pressures. Consult your local service dealer for high altitude adjustments. In Canada, certification for installation at altitudes over 4500 feet above sea level is the jurisdiction of local authorities. You should not readjust the burner ring gas pressure. If you replace your gas valve, you will need to adjust the new valve. Refer to your machine's **specification plate** for the correct pressure setting. Follow the installation and adjustment instructions provided with your replacement valve.

**NOTE:** Air for combustion and ventilation along with exhaust flue sizing must conform to methods outlined in current American Standard (ANSI-Z223.1) National Fuel Gas Code or National Standard of Canada CSA-149.1 and CSA-149.2 "Installation Code for Gas Burning Appliances".

**Start Up**



**WARNING:** Read and follow instructions carefully when installing or servicing machine. Failure to do so may result in damage to property or personal injury.

**AVERTISSEMENT:** Lire attentivement les directives avant d'installer ou d'effectuer

*l'entretien de la machine. Le non-respect de cette consigne pourrait causer des dommages matériels ou des blessures corporelles.*

1. Installation or servicing of gas appliances and controls must only be performed by qualified personnel. After installation or servicing, test the manual valve, operating valves, pressure regulation, and automatic shut-off valve for proper operation.
2. Install in a suitable dry location. Machine must be located in an area properly protected from weather.
3. Shut off gas and electricity before starting installation or service. Turn back on to test or operate.
4. **DO NOT** connect machine before pressure testing the gas piping. Damage to gas valve may result. (9" - 14" W.C.P. or 1/2 PSIG)
5. **DO NOT** insert any object other than suitable pipe or tubing in the inlet or outlet of the gas valve. Internal damage may occur and result in a hazardous condition.
6. **DO NOT** short the gas valve terminals.
7. **DO NOT** grip gas valve body with a pipe wrench or vise. Damage may result causing gas leakage. Use inlet or outlet bosses or a special body wrench.
8. **DO NOT** allow any flame to impinge on the regulator vent tubing if supplied. It may clog and cause gas valve malfunction.
9. **DO NOT** use the gas cock to adjust gas flow.
10. If main burner fails to shut off, turn off gas supply.
11. Keep all combustible materials away from gas appliances. **DO NOT** allow lint or dust to collect in burner area.
12. Dials must only be operated by hand. Never use pliers, wrenches or other tools to turn dials.

13. Leak test with a soap solution after installation or service with the main burner on. Coat pipe and tubing joints, gaskets, etc.

**For Your Safety Read Before Lighting**

<b>WARNING</b>
If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.
A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
B. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.  <b>"FOR YOUR SAFETY WHAT TO DO IF YOU SMELL GAS"</b>  <ul style="list-style-type: none"> <li>• Do not try to light any appliance.</li> <li>• Do not touch any electrical switch, do not use any phone in your building.</li> <li>• Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.</li> <li>• If you cannot reach your supplier, call the fire dept.</li> </ul>
C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it; call a qualified service technician. Forced or attempted repair may result in a fire or explosion.
D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

## Operations

### Check List Before Starting

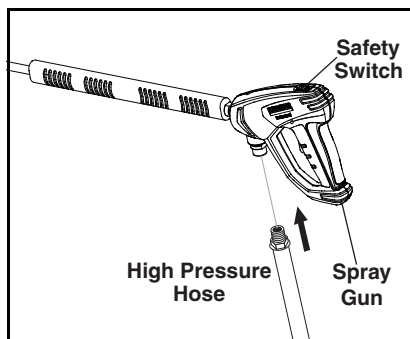
**CAUTION:** If "NO" has been checked on any of the following questions, do not operate this machine.

**ATTENTION:** Si la réponse à l'une des questions suivantes est « NON », ne pas utiliser la machine.

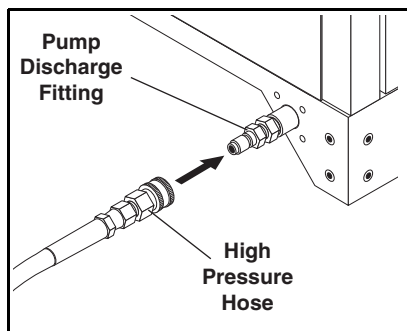
	YES	NO
Has gas supply been inspected by an authorized contractor to meet local codes?		
Is machine protected from downdraft and excessive wind?		
Is machine shielded from moisture or water spray?		
Is the voltage correct and are the circuit breaker and supply cord adequate according to specifications and serial plate notation?		
Is the machine electrically grounded?		
Is there ample water supply?		
Have all flammable liquids or gases been removed from installation location?		
Is there adequate gas supply for the BTU rating of the burner?		
"Is incoming gas supply pressure between 6" - 14" water column inches or 1/2 PSIG?"		
Has the proper gas regulator been installed for pressure and volume?		
Have you installed the optional LP gas regulator assembly 9.802-633.0?		
Is the machine properly vented to allow adequate air flow?		
Are the propane tanks large enough, according to rating to prevent freezing?		
Have gas lines been checked for gas leaks?		
Have gas lines been checked with local codes?		
Have all operators using this machine been instructed properly and have they read the manual?		
Has the machine been installed according to operator's manual instructions?		



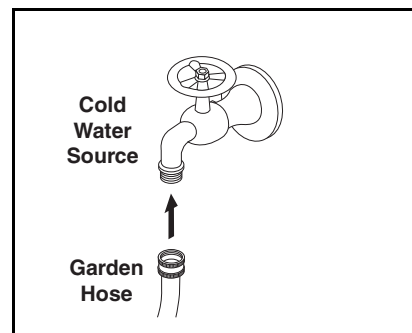
**Assembly Instructions**



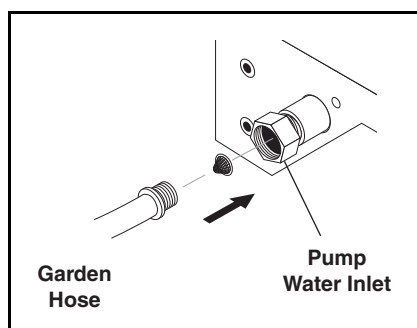
**STEP 1:** Attach the high pressure hose to the spray gun using teflon tape on hose threads. Move safety latch into locked position to prevent spray gun trigger from activating.



**STEP 2:** Connect the high pressure hose to the discharge fitting. Push coupler collar forward until secure.

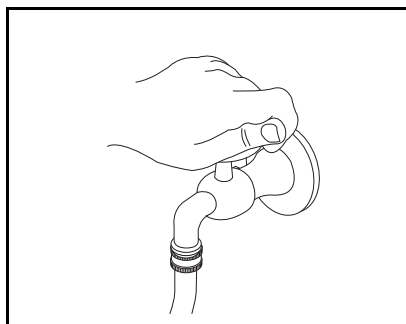


**STEP 3:** Connect garden hose to the cold water source.

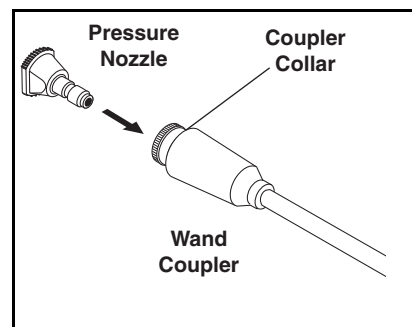


**STEP 4:** Connect the garden hose to pump water inlet. Inspect inlets. **CAUTION: Do not run the pump without water or pump damage will result.**

**ATTENTION: Ne pas faire fonctionner la pompe sans eau pour éviter d'endommager la pompe.**



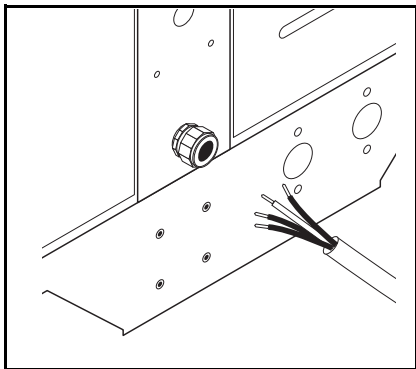
**STEP 5:** Before installing nozzle, turn on the water supply and run machine allowing water to run from the end of the wand until clear. Turn off machine. Check for water leaks and tighten as needed.



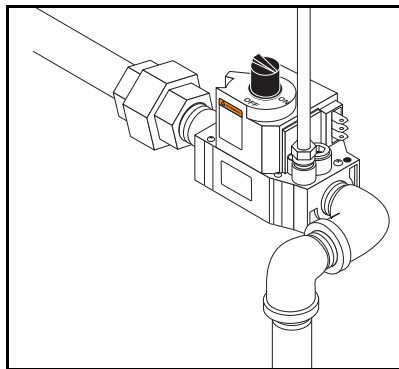
**STEP 6:** Pull the spring-loaded collar of the wand coupler back to insert pressure nozzle. Release the coupler collar and push the nozzle until the collar clicks. Pull the nozzle to make sure it is seated properly.

# Operations

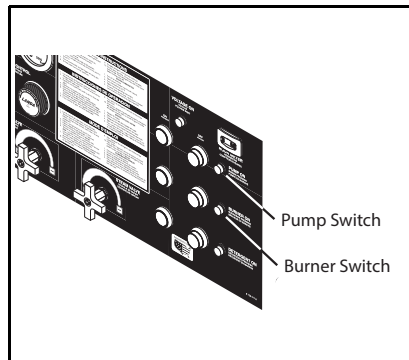
## Operating Instructions



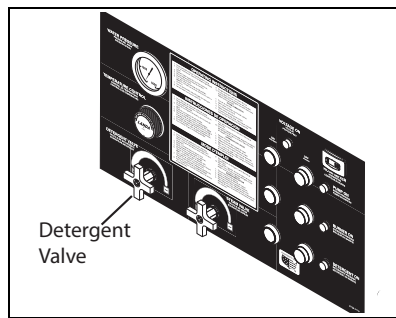
**STEP 1:** Have an electrician connect power supply into electrical box according to information shown on the serial plate.



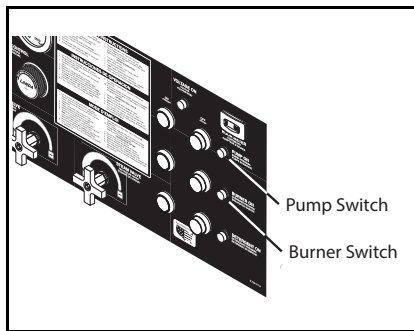
**STEP 2:** Turn on main gas supply and depress and turn control knob to the 'ON' position.



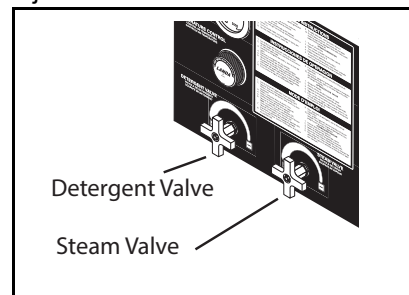
**STEP 3:** Push pump 'ON' switch, or turn to pump position and pull the trigger on the spray gun allowing cold water to flow. To activate the gas control valve for hot water, push the burner switch to the 'ON' position and pull the trigger on the spray gun. When steam is needed, turn the steam knob counterclockwise. Then turn the temperature adjustment knob to 275°F.



**STEP 4:** To apply detergent open the detergent valve counterclockwise making sure that the detergent pick-up tube is in the detergent solution and not sucking air. With optional remotes, the detergent switch needs to be turned to the OFF position before turning to the ON position to activate the detergent solenoid.



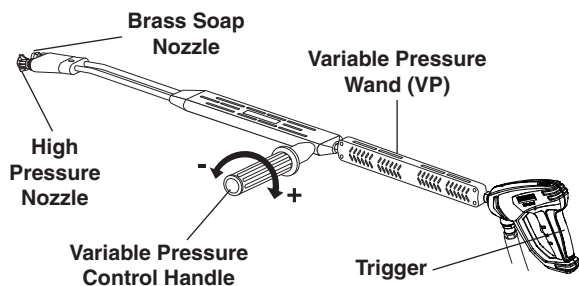
**STEP 5: To Stop:** Turn the burner switch off and place the detergent pick-up tube into fresh water. Open the detergent valve and trigger spray gun allowing detergent lines to be flushed and the burner to cool. Otherwise, coil damage will result. After water has cooled, turn pump switch to OFF position. If the machine is going to be off for an extended period of time, put the manual valve on the gas valve into the OFF position.



**STEP 6:** Close the steam knob and detergent valve by turning clockwise and settling the temperature control knob between 200°-225°F.

*NOTE: Do not allow acids, caustic or abrasive fluids to pass through the pump.*

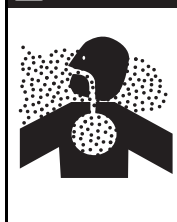
*NOTE: Never run pump dry or leave spray gun closed longer than 3 minutes.*



*NOTE: Selection of high or low pressure is accompanied by turning the handle. High pressure nozzle must be inserted at end of wand to obtain high pressure. To apply soap read operator's manual.*

## Applying Detergent & General Operating Techniques

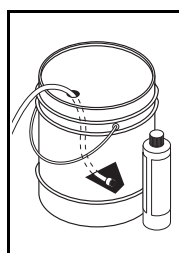
### **! WARNING**



**WARNING:** Some detergents may be harmful if inhaled or ingested, causing severe nausea, fainting or poisoning. The harmful elements may cause property damage or severe injury.

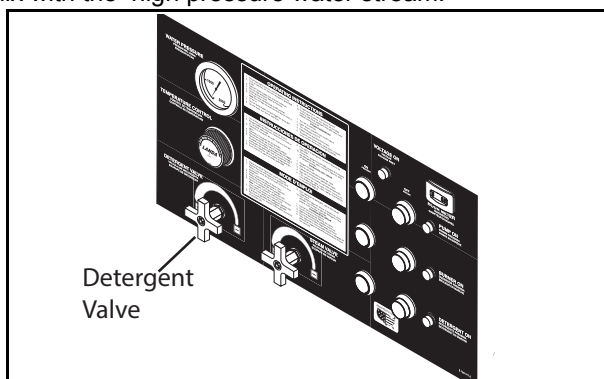
**AVERTISSEMENT:** Certains détergents peuvent être dangereux s'ils sont inhalés ou ingérés, provoquant de fortes nausées, des

évanouissements et l'empoisonnement. Les éléments dangereux peuvent causer des dommages à la propriété ou des blessures graves.

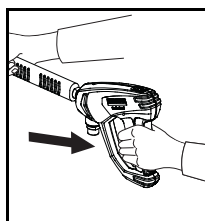


**STEP 1:** Use detergent designed specifically for pressure washers. Household detergents could damage the pump. Prepare detergent solution as required by the manufacturer. Fill a container with pressure washer detergent. Place the filter end of detergent suction tube into the detergent container.

**STEP 2:** Open detergent valve counterclockwise until you obtain desired mixture. Detergent will mix with the high pressure water stream.



**STEP 3:** With the motor running, pull trigger to operate machine. Liquid detergent is drawn into the machine and mixed with water. Apply detergent to work area. Do not allow detergent to dry on surface.



**IMPORTANT:** You must flush the detergent from your pressure washer after each use by placing the suction tube into a bucket of clean water, then run the pressure washer for 2 minutes.

**NOTE:** If you remove detergent siphon tube from container or allow container to empty, it will cause low pressure by sucking air, which will damage the pump.

## Thermal Pump Protection

If you run the engine for 3-5 minutes without pressing the trigger on the spray gun, circulating water in the pump can reach high temperatures. When the water reaches this temperature, the pump protector engages and cools the pump by discharging the warm water onto the ground. This thermal device prevents internal damage to the pump.

## Cleaning Tips

Pre-rinse cleaning surface with fresh water. Place detergent suction tube directly into cleaning solution and apply to surface. For best results, limit your work area to sections approximately 6 feet square and always apply detergent from bottom to top. Allow detergent to remain on surface 1-3 minutes. Do not allow detergent to dry on surface. If surface appears to be drying, simply wet down surface with fresh water. If needed, use brush to remove stubborn dirt. Rinse at high pressure from top to bottom in an even sweeping motion keeping the spray nozzle approximately 1 foot from cleaning surface. Use overlapping strokes as you clean and rinse any surface. For best surface cleaning action spray at a slight angle.

## Recommendations:

- Before cleaning any surface, an inconspicuous area should be cleaned to test spray pattern and distance for maximum cleaning results.
- If painted surfaces are peeling or chipping, use extreme caution as pressure washer may remove the loose paint from the surface.
- Keep the spray nozzle a safe distance from the surface you plan to clean. High pressure wash a small area, then check the surface for damage. If no damage is found, continue to pressure washing.

## **! CAUTION - Never use:**

- Bleach, chlorine products and other corrosive chemicals
- Liquids containing solvents (i.e., paint thinner, gasoline, oils)
- Tri-sodium phosphate products
- Ammonia products or acid-based products

## **Ne jamais utiliser :**

- Eau de Javel, produits à base de chlore et autres produits chimiques corrosifs
- Liquides contenant des solvants (c.-à-d. diluant à peinture, essence, huiles, etc.)
- Produits à base de tripolyphosphate de sodium
- **Ammoniac ou produits à base d'acide**

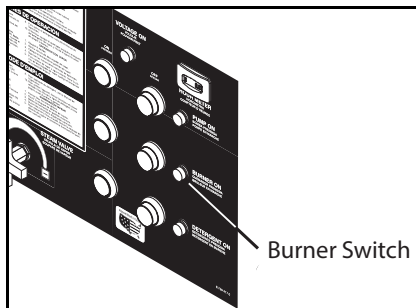
These chemicals will harm the machine and will damage the surface being cleaned.

## Rinsing

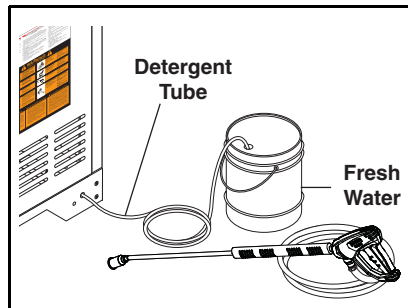
Turn detergent valve clockwise to close. Operate pressure washer and allow a few seconds for the detergent to clear.

## Operations

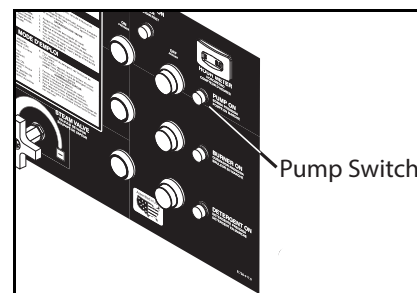
### Shutting Down And Clean Up



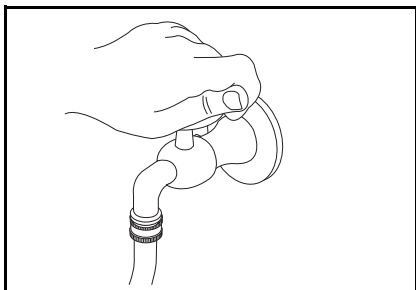
**STEP 1:** Turn the burner switch to the 'OFF' position.



**STEP 2:** Place the detergent tube in fresh water and open the detergent valve and spray gun, allowing the detergent lines to be flushed and the burner to cool. Otherwise coil damage may occur.



**STEP 3:** After water has cooled, push or turn pump switch to 'OFF' position. If the machine will be turned off for an extended period of time, put the gas cock on the gas valve in the 'OFF' position.



**STEP 4:** Turn off water. Protect from freezing.

### Storage



**CAUTION:** Always store your pressure washer in a location where the temperature will not fall below 32°F (0°C). The pump in this machine is susceptible to permanent damage if frozen.

**FREEZE DAMAGE IS NOT COVERED BY WARRANTY.**

**ATTENTION:** Toujours entreposer la laveuse à pression dans un endroit où la température ne sera pas inférieure à 0 °C (32 °F).

**La pompe sur cette machine est susceptible de subir des dommages si elle est exposée au gel. LES DOMMAGES DUS AU GEL NE SONT PAS COUVERTS PAR LA GARANTIE.**

1. Stop the pressure washer, squeeze spray gun trigger to release pressure.
2. Detach water supply hose and high pressure hose.
3. Turn on the machine for a few seconds, until remaining water exits. Turn pump off immediately.

4. Do not allow high pressure hose to become kinked.
5. Store the machine and accessories in a room which does not reach freezing temperatures.



**CAUTION:** Failure to follow the above directions will result in damage to your pressure washer.

**ATTENTION:** Le non-respect des directives ci-dessus entraînera des dommages à la laveuse à pression.

### After Extended Storage

**CAUTION:** Prior to restarting, thaw out any possible ice from pressure washer hoses, spray gun or wand.

**ATTENTION:** Avant de redémarrer, faire fondre la glace se trouvant sur les boyaux, le pistolet pulvérisateur ou la lance de la laveuse à pression.

## Preventative Maintenance

1. Check to see that water pump is properly lubricated.
2. Follow Winterizing Procedures to prevent freeze damage to the pump and coils.
3. Always neutralize and flush detergent from system after use.
4. If water is known to be high in mineral content, use a water softener in your water system or de-scale as needed.
5. Do not allow acidic, caustic or abrasive fluids to be pumped through the system.
6. Always use high grade quality Landa cleaning products.
7. Never run pump dry for extended periods of time. Shut off timer will be set for two minutes.
8. Periodically descale coils. Contact Landa dealer for instructions.

It is advisable, periodically, to visually inspect the burner. Check air inlet to make sure it is not clogged or blocked. Wipe off any oil spills and keep this equipment **clean and dry**.

The areas around the Landa washer should be kept clean and free of combustible materials, gasoline and other flammable vapors and liquids.

The flow of combustion and ventilating air to the burner must not be blocked or obstructed in any manner.

**NOTE:** Pump damage may occur if ran in bypass longer than two minutes.

## Spray Nozzles

Each machine is equipped with one or more spray nozzles, depending on model. Different spray nozzles are calibrated for each machine depending on the flow and pressure of that particular model. Spray nozzles vary in bore size and angle of spray. Popular spray angles are 0°, 15°, 25°, 40°. When ordering, please specify size and angle of nozzle. Nozzle size for each machine is located on the serial plate.

## Unloader Valves

Unloader valves are preset and tested at the factory before shipping. Occasional adjustment of the unloader may be necessary to maintain correct pressure.

Call your Local Dealer for Assistance. Tampering with the factory setting may cause personal injury and or property damage, and will void the manufacturer's warranty.

## Winterizing Procedure

Damage due to freezing is not covered by warranty. Adhere to the following cold weather procedures whenever the washer must be stored or operated under freezing conditions.

During winter months, when temperatures drop below 32°F, protecting your machine against freezing is necessary. Siphoning a small amount of antifreeze into the system is recommended. This is done by pouring a 50:50 mix of antifreeze and water into the float tank and then siphoning 100% antifreeze through the detergent line with the pump on. If compressed air is available, an air fitting can be screwed into the float tank strainer fitting and by injecting compressed air, all water will be blown out of the system. The use of a draft diverter will prevent the wind chill factor from freezing the coil.

## High Limit Hot Water Thermostat

For safety, each machine is equipped with a high limit control switch. In the event the temperature of the water should exceed its operating temperature, the high limit control will turn the burner off until the water cools.

## Pumps

### **Use only SAE10W-40 weight non-foaming oil.**

Change oil after first 50 hours of use. Thereafter, change oil every year or at 500 hour intervals. Oil level should be checked through use of the dipstick found on the top of the pump or by the red dot visible through the oil gauge window. Oil should be maintained at that level.

## Maintenance

### Heating Coil

#### Condensation from Heating Coil

When cold water is being pumped into the water heater coil, and the burner is on, condensation will form on the coil and drip down into the burner compartment, giving the appearance of a leaking coil, particularly on cold humid days.

#### To Check Water Heater Coil for Leaks

With the main burner "OFF" start machine and allow it to run a few minutes. Look into the burner compartment with a drop light or flashlight. If no leaks are visible, then water dripping from coil is from condensation.

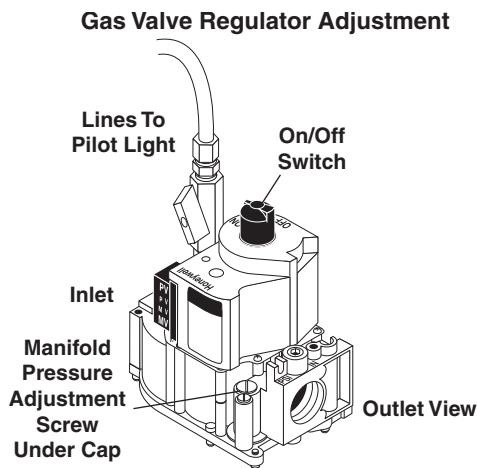
### Descaling Coil

In alkaline water areas, lime deposits can accumulate rapidly inside the coil pipes. This growth is increased by the extreme heat build up in the coil. The best preventative for liming conditions is to use high quality cleaning detergents. In areas where alkaline water is an extreme problem, periodic use of Landa Coil Descaler (part #8.914-296.0) will remove lime and other deposits before coil becomes plugged.

**Periodic descaling of the heating coil is recommended so please consult your local Landa Dealer for instructions.**

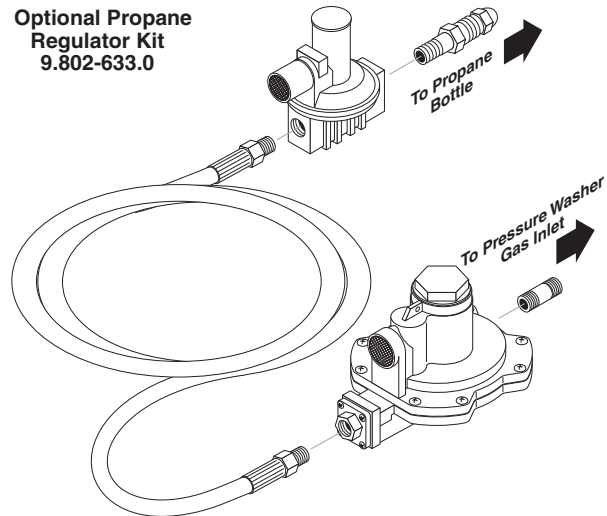
### Gas Valve Regulator Adjustment

Adjustment of the built-in regulator isn't normally necessary, since it is preset at the factory. However, field adjustment may be accomplished as follows:



1. Attach manometer at pressure tap port.
2. Remove regulator adjustment screw cap.

3. With a small screwdriver, rotate the adjustment screw clockwise to increase or counterclockwise to decrease gas pressure.
4. Replace regulator adjustment screw cap.



REF	PART NO.	QTY	DESCRIPTION
-	9.802633.0	1	REGULATOR, LP ASSEMBLY
1	9.802-019.0	1	NIPPLE, 3/4" X 2", BLACK
2	8.717-747.0	1	REGULATOR, R622CFF FOR R932/28 & R932462
3	8.717-746.0	1	REGULATOR, HI PRESSURE, R321H22
4	8.711-855.0	1	HOSE, 1/2" X 19", PROPANE
5	8.717-782.0	1	FITTING, PIGTAIL, FISHER, M318 (INCLUDED WHEN ORDERING PART 8.717-746.0)

### Pressure Relief Valve

Each machine is equipped with a relief valve to relieve pressure in the system when higher than normal operating pressures are encountered. If operating pressure of machine is found to be normal and relief valve continues to leak, repair or replace the valve.

**CAUTION: Relief valve can become obstructed by deposits and must be unscrewed at least once per year to allow discharge.**

**ATTENTION: La soupape de décharge peut devenir obstruée par des dépôts et doit être dévissée au moins une fois par année pour permettre le rejet.**

## Propane Gas

### General Safety Precautions

Have a qualified gas service person assist in any gas burner installation or service. Few maintenance people or mechanics are knowledgeable in gas controls or related safety practices. Propane gas is heavier than air; unburned propane gas will gravitate to the floor rather than rise out of the stack. Hence, adequate floor space and good ventilation are especially important with propane systems.

### Gas Pressure Requirements

All propane fired machines operate on vapor propane fuel only. They are designed to operate at a pressure of 11 w.c.i. (between 1/3 and 1/2 of one psi), and are often operated at even higher pressures when extra heat is needed.

Exterior regulators are needed to control the system. Propane bottles are not included with the machine. A high pressure regulator should be installed on the propane bottle and a low pressure regulator attached to the pressure washer.

### Propane Cylinder Capacity

An important consideration with propane systems is the capacity of the supply cylinder relative to the needs of the burner. The burner operates on propane as a vapor gas. As gas is used from the propane cylinder, the liquid in the cylinder boils to maintain vapor gas pressure. This boiling process cools the liquid, and in a heavy, continuous-demand situation, the liquid temperature can fall to the point at which it cannot provide vapor gas as rapidly as is needed. In this case, it may be necessary to warm the propane cylinder by directing a warm spray, not over 120°F, on the cold cylinder or by manifolding two propane bottles together to increase total vaporization capacity. It is recommended that a minimum 100 lb. vapor propane bottle be used on the machine, depending on the length of running time desired.

## Burner Features

### Operated Automatic Valve

This machine is equipped with an Intermittent Pilot Ignition System. This system is designed to eliminate the need for a constant burning pilot. Lighting of the pilot is accomplished through electronic spark ignition each time the burner and flow switch call for heat. The pilot is not burning when there is no call for heat. Do not attempt to light the appliance manually as a burn injury or electrical shock may result. The pilot light will remain on and the main gas valve is turned off when the spray gun is closed.

### Care of Main Burner

Due to condensation from heater coils dripping down on the burners, scale build-up may occur in the burner jet orifices.

1. TO REMOVE BURNER MANIFOLD FROM WATER HEATER COIL
  - Turn off the gas to the main burner by turning the knob to the "OFF" position on the gas valve and the main gas supply.
  - Disconnect the pilot and ignition lines from the gas valve. Disconnect union in main burner line below thermostat. Slide burner manifold out through shell opening.
2. TO CLEAN BURNER JETS
  - Select proper size drill for type gas involved. Use pin vise to hold drill and ream out each jet orifice.

**CAUTION: Do not ream out orifices to a larger size.**

**ATTENTION: Ne pas agrandir les orifices.**

If the water heater will be exposed to freezing weather, an anti-freeze solution should be circulated through the coil by whatever means are available for the particular system the water heater is used on.

## Smart Relay Instructions

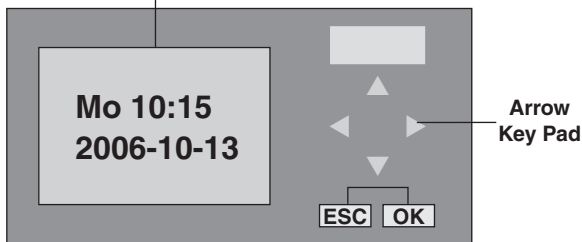
### Digital Timer (Optional)

The following are instructions on how to set the parameters on the digital timer in Programming Mode. To define these settings please follow the steps below.

#### Setting the Clock:

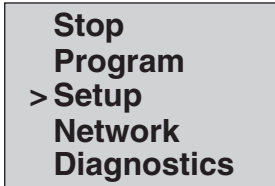
1. Press the **ESC** key located next to the display window and under the arrow key pad

Default Display Screen

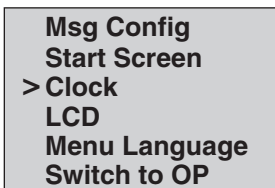


Pressing the **ESC** key will access the Parameter Assignment Menu.

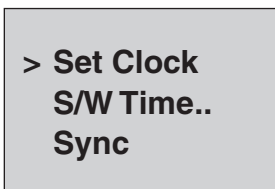
2. Using the up/down arrow keys **▲** or **▼**, move the (>) cursor to **'Setup'** and press **OK** to accept.



3. Move the (>) cursor to **'Clock'** and press **OK** to accept.

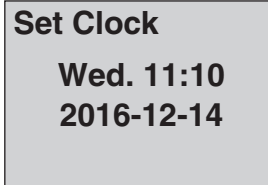


4. Move the (>) cursor to **'Set Clock'** and press **OK** to accept **'Set Clock'**.



**NOTE:** When setting time on clock, use only **military time**.

The cursor is now positioned on the weekday and shows the following on the display window (see figure below).



5. Select the time of day by using the up down arrow keys **▲** or **▼**.
6. Move the cursor to the next position by using the left/right arrow keys **◀** or **▶**.
7. To change the value use the up/down arrow keys **▲** or **▼**.
8. To set the date, repeat steps 6 and 7.
9. To accept your entries press **OK**.
10. To go back to the previous menu at anytime press **ESC**.

### Programming Instructions

The 900/1400 can be configured to run in Time Delay or Auto Start/Stop with lockout. Machines are factory set with Auto Start/Stop with 4 hour Lockout. A Smart Relay controls how the machine will operate by using three internal timers; these timers are adjustable. The following is a brief description of these timers:

#### Timer 1: 'Lockout Timer' (Time Delay)

Timer 1 de-energizes (lockout) the machine if not being used for a preset time. If machine has 'Locked out' it can only be re-energize by pressing the 'Pump On' switch. Timer 1 is factory set to 4 hours.

#### Timer 2: 'Auto Start/Stop Timer'

Timer 2 allows the pump to run in bypass for a preset time. If the pump runs in bypass longer than the allotted time the timer will drop power to the motor contactor and machine will be in standby mode. Squeezing the gun trigger will restart the pump (if Timer 1 has not locked out). Timer 2 is factory set to 30 seconds.

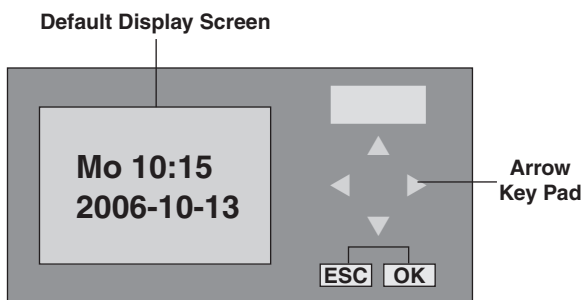


### Timer 3: 'Reset Delay Timer'

Timer 3 controls how long the pump must run before resetting the 'Lockout Timer' (Timer 1). This allows the pump to run long enough to re-pressurize the system if there is pressure loss when not in use. Timer 3 is factory set to 15 seconds.

To change to the parameters of the internal timers in the Smart Relay complete the following steps:

1. Turn on the power to the machine and press the start switch. Remove the front panel and then the control panel cover. **NOTE: Use extreme caution when reaching into the control box, the machine has live power.** Once powered the Smart Relay window will display the Default display screen. (See below)



2. Press the **ESC** key located next to the display window and under the arrow key pad (see figure 2). Pressing the **ESC** key will access the Parameter Assignment Menu.

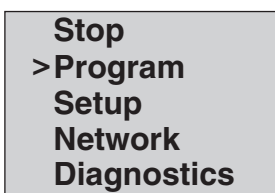


Fig. 2

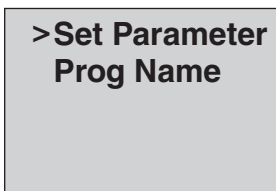


Fig. 3

3. Using the up/down arrow key ▲ or ▼, move the (>) cursor to 'Program' and press **OK** to confirm (See figure 3).

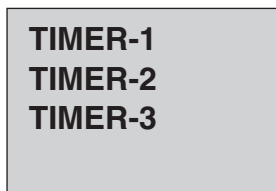


Fig. 4

4. The display window shows the three parameters. (See figure 4)

**NOTE: Ta is the accumulator timer and T is the adjustable timer (the variable that changes)**

5. Press **OK** to change the value of Timer 1. Using the left/right arrow key ◀ or ▶, move the cursor to the desired field and press **OK**.

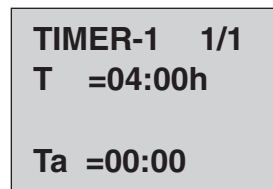


Fig. 5

Next, use the up/down arrow keys ▲ or ▼ to change this value. (See figure 5)

6. Each timer has optional units of time in seconds (s), minutes (m), and hours (h). To change the unit of time use the left/right arrow keys ◀ or ▶ to move the cursor to the unit field. Change the unit of time using the arrow up/down keys ▲ or ▼. Once all the values have been set press **OK** to accept. (See figure 6)

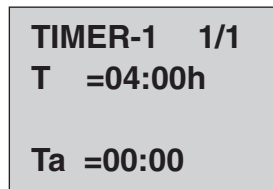


Fig. 6

7. Press **ESC** and use the arrow up/down keys ▲ or ▼ to select the next parameter to change (Timer-2). Repeat steps 4 and 5 to change the Timer-2 parameters. (See figure 7)

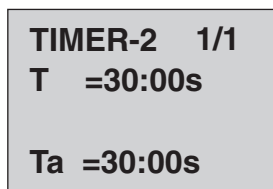


Fig. 7

8. Press **ESC** and use the arrow up/down keys ▲ or ▼ to select the next parameter to change (Timer -3). Repeat steps 4 and 5 to change the Timer-3 parameters. (See figure 8)

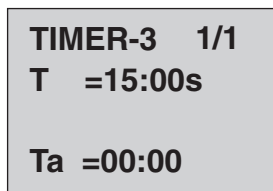


Fig. 8

9. Once all timers have been set to the desired time press **ESC** three times to return to the Parameter Assignment Menu screen. (See figure 9)

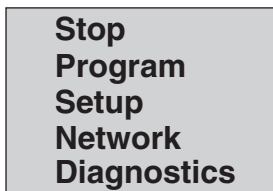


Fig. 9

## **Maintenance**

### **Factory Set Parameters (Auto Start/Stop with Lockout)**

<b>TIMER</b>	<b>VALUE</b>	<b>DESCRIPTION</b>
Timer 1	04:00 Hours	Turns machine off after 4 hours of non-use. To restart push the 'Pump On' switch.
Timer 2	30:00 Seconds	Pump will run in bypass for 30 seconds before shutting off, machine is still in standby mode. Pulling the gun trigger will restart the pump.
Timer 3	15:00 Seconds	In case of pressure loss when machine is in standby, the pump can run up to 15 seconds before resetting 'Timer 1' (lockout)

### **Factory Set Parameters**

<b>TIMER</b>	<b>VALUE</b>	<b>DESCRIPTION</b>
Timer 1	03:00 Minutes	When machine is not in use, pump will run in bypass for 3 minutes and shut off. To restart push the 'Pump On' switch.
Timer 2	01:00 Hours	To operate in time delay mode timer 2 must be deactivated. This is done by setting timer 2 to value greater than timer 1.
Timer 3	15:00 Seconds	Pump must run more than 15 seconds to reset timer 1.

**Preventative Maintenance**

This pressure washer was produced with the best available materials and quality craftsmanship. However, you as the owner have certain responsibilities for the correct care of the equipment. Attention to regular preventative maintenance procedures will assist in preserving the performance of your equipment. Contact your Landa dealer for maintenance. Regular preventative maintenance will add many hours to the life of your pressure washer. Perform maintenance more often under severe conditions.

<b>Maintenance Schedule</b>		
Pump Oil 10W-40 non-foaming	Inspect	Oil level daily
	Change	After first 50 hours, then every 500 hours or annually
Check and Tighten Belts		Every 3 months
Remove Burner Soot		Annually
Burner Adjustment/Cleaning		Annually
Clean Burner Nozzles		Annually
De-scale Coil		Annually (More often if required)
Replace High Pressure Nozzle		Every 6 months
Replace Quick Couplers		Annually
Clean Water Screen/Filter		Weekly
Replace HP Hose		Annually (If there are any signs of wear)
Grease Motor		Every 10,000 hours

**Oil Change Record**

<b>Date Oil Changed Month/Day/Year</b>	<b>Estimated Operating Hours Since Last Oil Change</b>

## Maintenance

### Troubleshooting - Burner

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>FLOW &amp; BURNER SWITCH ON; NO SPARK, NO PILOT GAS</b>	A. No main power	With power switch on, open trigger on spray gun and set your test meter to the 24 volt scale. Probe terminals 24V and 24V(GND). If you do not read 24 volts, the problem is not the ignition system. Perform normal system checks of main power, transformer, thermostat and the limit control. If you do read 24 volts at TH and GND, the problem is in the ignition system. Check for loose or defective wiring. If wiring is good, replace the ignition control unit.
	B. Faulty transformer	
	C. Faulty burner & flow switch	
	D. Faulty ignition control unit	
<b>HAVE SPARK, NO PILOT GAS FLOW</b>	Main gas supply turned off	Set test meter to 24 volt scale.
		1. Be sure main gas valve (gas cock or selector arm) is turned on.
		2. With gas on and system sparking, probe terminals PV and 24V(GND). If pilot gas does not flow with 24 volts at these terminals, replace gas valve.
		3. Probe terminals PV and MV/PV. If 24 volts not present, replace ignition control box.
<b>HAVE PILOT GAS, NO SPARK</b>	A. Defective ignitor/sensor and or its wiring	Set test meter to ohm scale.
		1. Disconnect the wire from the IGN terminal on the ignition control unit.
	B. Faulty ignition control unit	2. Touch one meter probe to the tip of the ignitor/sensor rod in the pilot. Touch the other probe to the quick connect at the other end of ignitor/sensor wire.
		3. If you have continuity from the tip of the ignitor/sensor rod to the connector and no spark, replace the ignition control unit.
		4. If you do not have continuity through wire and the ignitor/sensor, check for a loose wire connection in the wire. Repair as needed.
		5. Check to see if spark shorts to burner ring through a cut in the ignitor wire.

PROBLEM	POSSIBLE CAUSE	SOLUTION
<p><b>HAVE PILOT FLAME, MAIN BURNER WILL NOT TURN ON</b></p>	<p>Faulty main valve coil in the gas valve</p>	<p>Set test meter to 24 volt scale.</p>
	<p>Faulty ignitor/sensor and/or its wiring</p>	<p>With pilot flame on ignitor/sensor, probe terminals MV and MV/PV on the ignition control unit. If you read 24 volts here, but not at the gas valve, there is a loose wiring connection. Repair or replace as needed.</p>
	<p>Ground wire not attached to machine chassis</p>	<p>If you do read 24 volts at MV and MV/PV and the pilot flame is impinging on the ignitor/sensor rod, the problems may be:</p>
	<p>Faulty ignition control unit</p>	<p>a. Faulty ignitor/sensor and/or its wiring.</p>
		<p>b. Faulty ignition control unit.</p>
		<p>Set test meter to the ohm scale. Turn burner switch off.</p>
		<p>Check continuity through the green ground wire and its connections.</p>
<p>Reconnect the ignitor/sensor wire and the ground wire.</p>		
<p>Turn burner switch on. With the pilot burning and the flame on the ignitor/sensor rod, the main burner should turn on. If it does not, replace the ignition control unit.</p>		
<p><b>SHORT-CYCLING OF MAIN BURNER. MAIN BURNER TURNS OFF BEFORE THE BURNER SWITCH OR FLOW SWITCH IS TURNED OFF</b></p>	<p>Draft condition pulls flame away from ignitor/sensor rod.</p>	<p>Check the thermostat by bypassing at terminals P1 &amp; 1.</p>
		<p>Set thermostat high. With main burner on, observe the pilot flame impingement on the ignitor/sensor.</p>
	<p>Faulty thermostat or water temperature is too high</p>	<p>If pilot flame is small and draft condition pulls flame from ignitor sensor rod, the burner will turn off and then on again. a. Adjust pilot flame higher or clean pilot orifice. b. Bend ignitor/sensor rod closer to pilot flame.</p>
		<p>If flame impingement on the ignitor/sensor is stable and the system short-cycles, check the limit switch.</p>
		<p>Set test meter to 110 volt scale; a. When the system cycles off, probe the switch terminals of the limit switch. b. If you read 24V across the switch terminals the limit switch is open. Replace the limit switch.</p>
<p>A pilot flame set too high will also cause burner to short cycle. Pilot flame lifts over ignitor/sensor.</p>		

## Maintenance

### Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>LOW OPERATING PRESSURE</b>	Faulty pressure gauge	Install new gauge.
	Insufficient water supply	Use larger garden hose; clean filter washer at water inlet.
	Old, worn or incorrect spray nozzle	Match nozzle number to machine and/or replace with new nozzle.
	Belt slippage	Tighten or replace; use correct belt.
	Plumbing or hose leak	Check plumbing.
	Faulty or misadjusted unloader valve (where applicable)	Adjust unloader for proper pressure. Install repair kit when needed.
	Worn packing in pump	Install new packing kit.
	Fouled or dirty inlet or discharge valves in pump	Clean inlet and discharge valves.
	Worn inlet or discharge valves	Replace with valve kit.
	Obstruction in spray nozzle	Remove obstruction.
	Leaking pressure control valve (where applicable)	Rebuild or replace as needed.
	Detergent metering valve left open sucking air, or faulty metering valve	Close and/or replace metering valve.
	Slow motor RPM	Check incoming voltage.
<b>LOW WATER TEMPERATURE</b>	Improper size of gas lines	See pages 7-8 for sizing of gas lines.
	Low gas pressure	Increase gas pressure to machine.
	Improper pressure regulator	Specify BTU, building gas pressure and 11 w.c.i. to machine for correct sizing of regulator.
	Low gas valve pressure	Increase gas pressure as described in Gas Valve Regulator Adjustment section.
	Soot buildup on coils not allowing heat transfer	Clean coils.
	Improper burner nozzle	See exploded view parts list.

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
<b>WATER TEMPERATURE TOO HOT</b>	Incoming water to machine warm or hot	Lower incoming water temperature.
	Gas pressure too high	Call local gas company.
	Detergent line sucking air	Tighten all clamps. Check detergent lines for holes.
	Defective high limit switch	Replace.
	Incorrect burner nozzle size	See exploded view parts list.
	Insufficient water supplied	Check water G.P.M. to machine.
	Restricted water flow	Check nozzle for obstruction, proper size.
<b>DETERGENT NOT DRAWING</b>	Air leak	Tighten all clamps. Check detergent lines for holes.
	Detergent metering valve packing not tight or packing worn	Tighten nut. Replace valve or packing.
	Filter screen on detergent suction hose plugged	Clean or replace.
	Dried up detergent plugging metering valve	Disassemble and clean thoroughly.
	High viscosity of detergent	Dilute detergent to specifications.
	Restriction behind float tank screen removed	Install restriction.
	Hole in detergent line(s)	Repair hole.
	Strainer basket plugged	Remove and clean.
	Connections on selector valve loose	Put teflon tape on all pipe connections.
	Detergent solenoid not opening (where applicable)	Check flow switch, replace detergent solenoid.
<b>PUMP RUNNING NORMALLY BUT PRESSURE LOW ON INSTALLATION</b>	Pump sucking air	Check water supply and possibility of air seepage.
	Valves sticking	Check and clean or replace if necessary.
	Unloader valve seat faulty	Check and replace if necessary.
	Nozzle incorrectly sized	Check and replace if necessary (see serial plate for proper size).
	Worn piston packing	Check and replace if necessary.

## **Maintenance**

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<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
<b>FLUCTUATING PRESSURE</b>	Valves worn	Check and replace if necessary.
	Blockage in valve	Check and replace if necessary.
	Pump sucking air	Check water supply and air seepage at joints in suction line.
	Worn piston packing	Check and replace if necessary.
<b>PUMP NOISY</b>	Air in suction line	Check water supply and connections on suction line.
	Broken or weak inlet or discharge valve springs	Check and replace if necessary.
	Excessive matter in valves	Check and clean if necessary.
	Worn bearings	Check and replace if necessary.



<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
<b>PRESENCE OF WATER IN OIL</b>	Oil seal worn	Check and replace if necessary.
	High humidity in air	Check and change oil twice as often.
<b>WATER DRIPPING FROM UNDER PUMP</b>	Piston packing worn	Check and replace if necessary.
	O-ring plunger retainer worn	Check and replace if necessary.
<b>OIL DRIPPING</b>	Oil seal worn	Check and replace if necessary.
<b>EXCESSIVE VIBRATION IN DELIVERY LINE</b>	Irregular functioning of the valves	Check and replace if necessary.
<b>RELIEF VALVE LEAKS WATER</b>	Relief valves defective	Replace or repair.



# Parts

## LANDA VNG/VLP

**VNG4-20024A**  
1.109-563.0

**VNG4-20024B**  
1.109-564.0

**VNG4-20024C**  
1.109-565.0

**VNG4-20024H**  
1.109-568.0

**VNG4-30024A**  
1.109-569.0

**VNG4-30024B**  
1.109-570.0

**VNG4-30024C**  
1.109-571.0

**VNG4-30024H**  
1.109-574.0

**VNG6-30024B**  
1.109-575.0

**VNG6-30024C**  
1.109-576.0

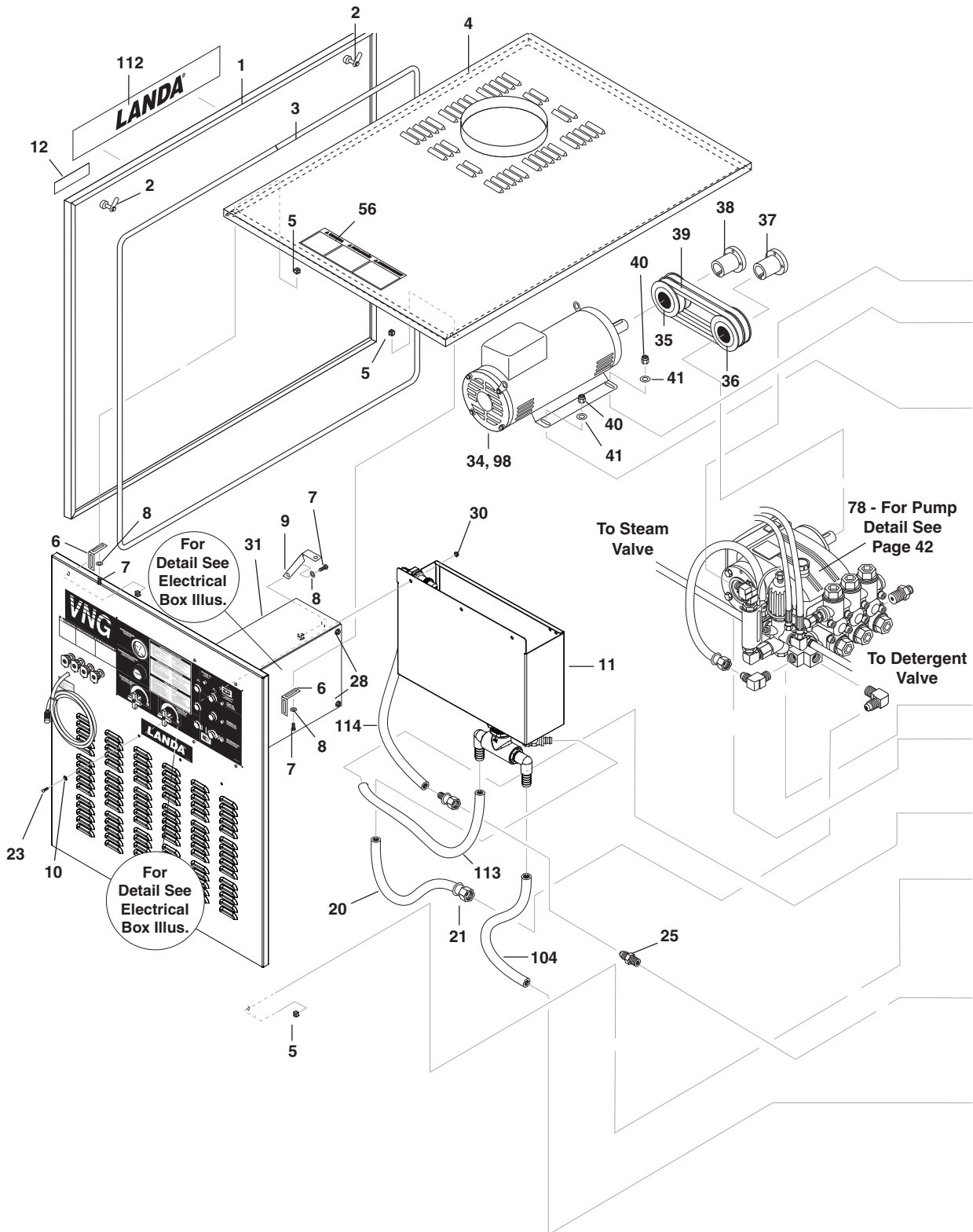
**VNG8-30024B**  
1.109-579.0

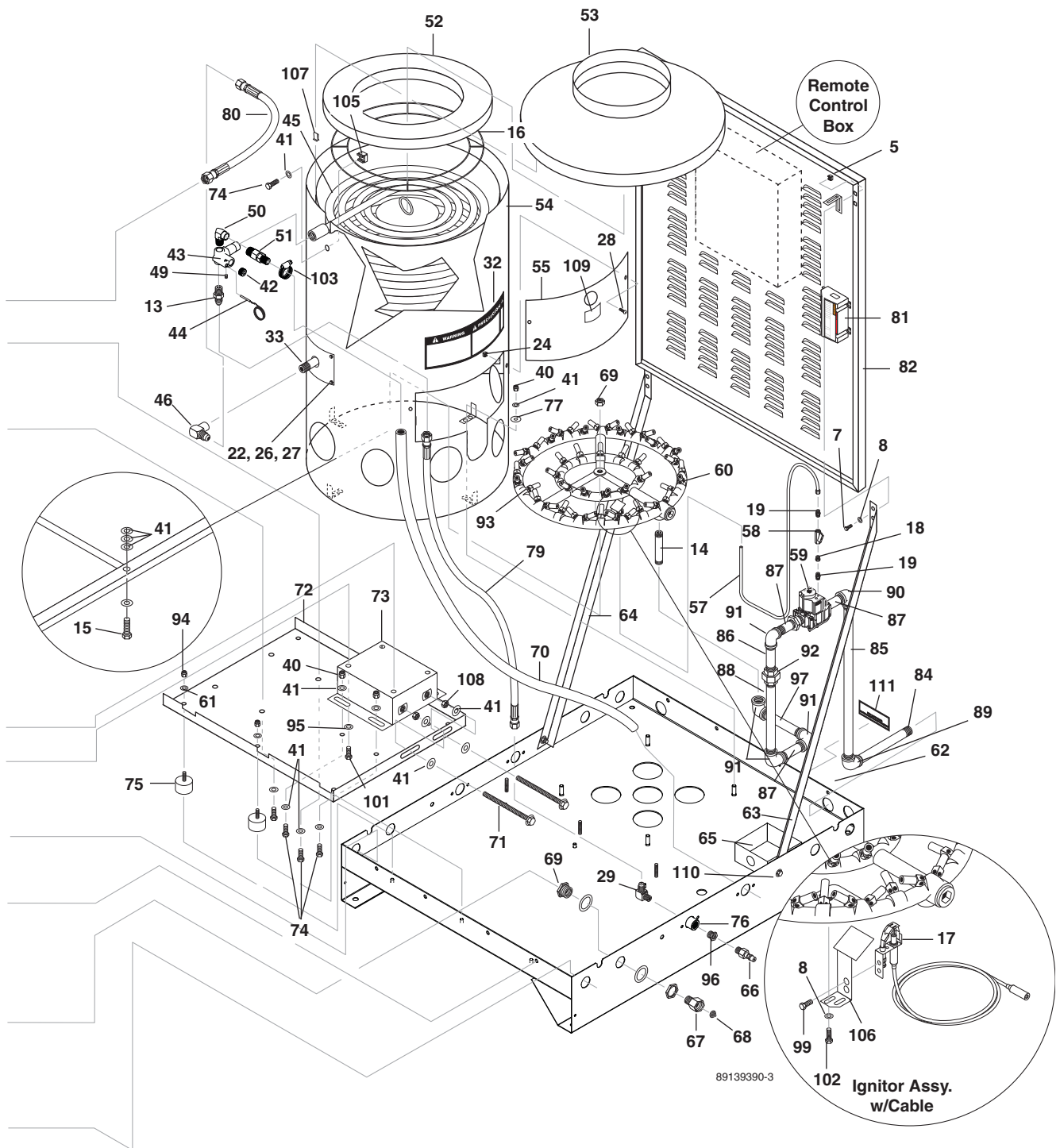
**VNG8-30024C**  
1.109-580.0

**VNG8-30024H**  
1.109-582.0

**VNG10-20024B**  
1.109-559.0

**VNG10-20024C**  
1.109-560.0





**Landa - 4-2000, 4-3000**

REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.912-539.0	2	PANEL, SIDE VNG-S	
2	8.719-066.0	4	LATCH, VISE ACTION	
3	9.802-072.0	26.5 ft	TRIM, W/SPONGE	
4	8.912-536.0	1	PANEL, TOP VNG-S	
5	9.802-793.0	26	NUT, CAGE, 1/4" X 16 GAUGE	
6	8.912-528.0	4	L-BRACKET, VNG	
7	9.802-700.0	21	BOLT, 1/4" X 3/4" NC HH	
8	9.802-802.0	23	WASHER, 1/4" FLAT SAE	
9	8.912-527.0	1	BRACE, VNG ELECTRICAL BOX	
10	9.804-082.0	3	WASHER, 1/4" BLACK	
11	8.924-821.0	1	FLOAT TANK, ASSEMBLY, VNG SMALL	
12	8.932-965.0	2	LABEL, WARNING - EXPOSED PULLEYS	
13	9.802-036.0	1	NIPPLE, 1/2" JIC X 3/8" MPT, STEEL	
14	8.706-087.0	1	NIPPLE, 3/4" X 4' BLACK PIPE	
15	9.802-769.0	1	BOLT, 3/8" X 1 3/4" NC, WHIZ -LOC	
16	8.719-940.0	1	RING, INSULATION RETAINER	
17	9.802-685.0	1	PILOT,NATURL GAS PILOT A3-S,#77623 2SH60	
18	8.706-910.0	1	BUSHING, 1/4" X 1/8" BUSHING	
19	9.803-563.0	1	CONNECTOR, 1/4" TUBE X 1/8" MPT	
20	9.802-259.0	18"	HOSE, 1/2" PUSH-ON	
21	9.802-151.0	2	SWIVEL, 1/2" JIC FEM, PUSH-ON	
22	9.802-798.0	4	SCREW, TEK, #10 X 1/2"	
23	9.804-003.0	3	SCREW, 1/4" X 3/4"	
24	9.802-791.0	2	NUT, 10/32 X 16 GAUGE, CAGE	
25	9.802-128.0	1	NIPPLE, 1/2" JIC X 1/2"	
26	8.933-009.0	1	GASKET, BURNER PLATE	
27	9.803-132.0	1	PLATE, INSULATION RETAINER	
28	9.802-764.0	6	SCREW, 10/32" X 3/4" HEX	
29	9.802-040.0	1	ELBOW, 1/2" JIC X 1/2" 90°	
30	9.802-773.0	3	NUT, 1/4" ESNA	
31	9.802-969.0	1	BOX, ELECTRICAL, VNG	
32	9.800-031.0	1	LABEL, PILOT LIGHT WARNING	
33	9.802-014.0	1	NIPPLE, 1/2" X 3" GALV. PIPE	
34	-	-	MOTOR	SEE SPECIFICATIONS PAGE
35	-	-	PULLEY, MOTOR	SEE SPECIFICATIONS PAGE
36	-	-	PULLEY, PUMP	SEE SPECIFICATIONS PAGE
37	-	-	BUSHING, PUMP	SEE SPECIFICATIONS PAGE
38	-	-	BUSHING, MOTOR	SEE SPECIFICATIONS PAGE
39	-	-	BELT	SEE SPECIFICATIONS PAGE

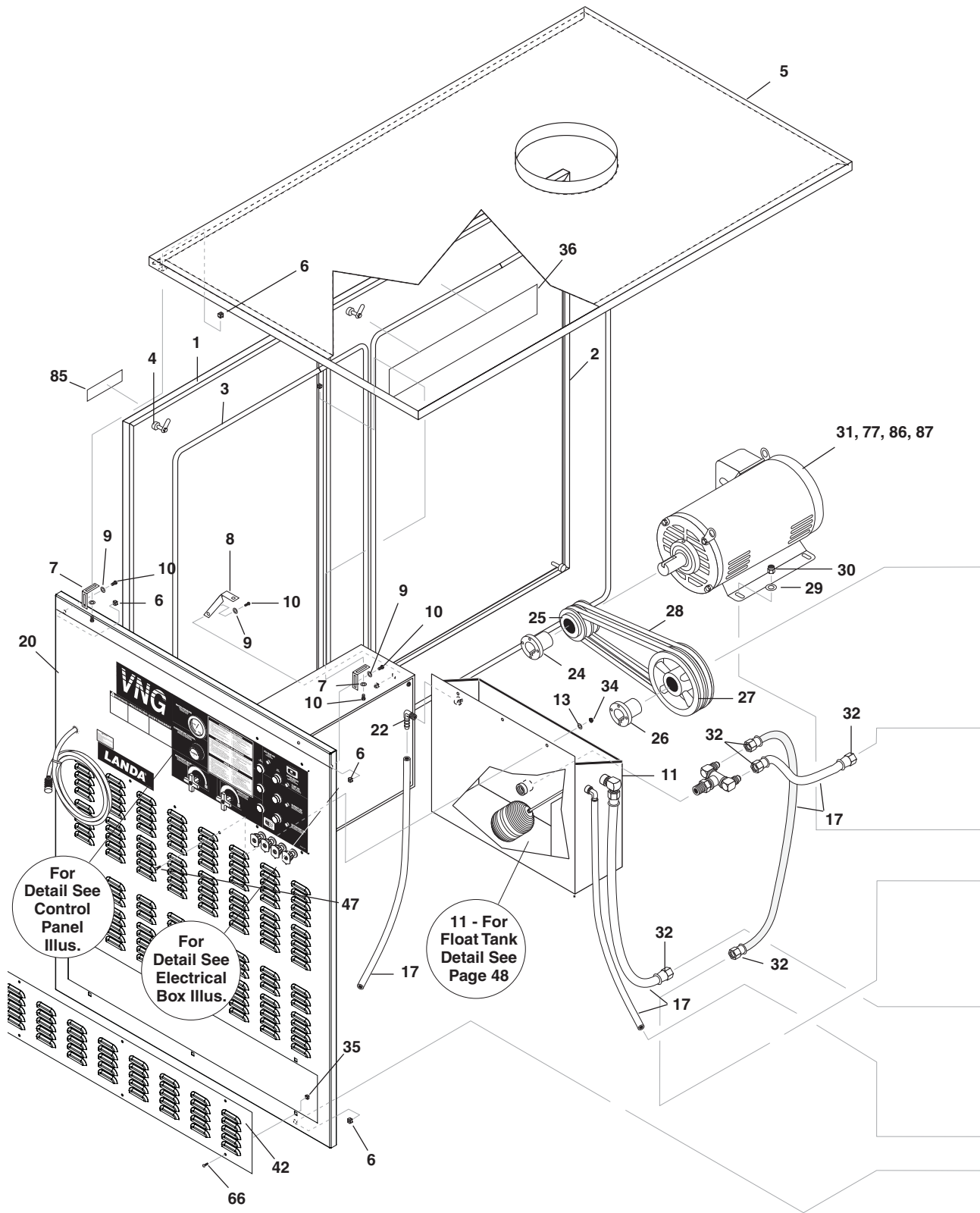
REF	PART NO.	QTY	DESCRIPTION	NOTES
40	8.725-395.0	12	NUT, 3/8" ESNA	
41	8.725-394.0	36	WASHER, 3/8" FLAT, SAE	
42	8.706-248.0	1	PLUG, 3/8", COUNTER SUNK	
43	9.149-003.0	1	DISCHARGE MANIFOLD	
44	8.750-095.0	1	THERMOSTAT, 302°	
-	8.750-096.0	1	KNOB	
45	9.803-135.0	1	COIL, DURA 20" DIA, SCH 80	
46	9.802-043.0	1	ELBOW, 1/2", 90°, FEMALE, JIC	
47	9.802-159.0	1	CONNECTOR, 1/4" TUBE X 1/4" MPT	
48	8.918-421.0	1	HOSE, 1/4" X 36" GAUGE	
49	9.196-012.0	1	SCREW 10-24 X 1/4"	
50	9.802-024.0	1	ELBOW, 3/8" MPT X 1/2" FPT STREET, STEEL	
51	8.707-381.0	1	RUPTURE DISC ASSY, 8500#	
52	8.930-140.0	1	INSULATION, TOP HEAD, 20"	
53	9.802-976.0	1	TOP, BURNER WRAP, 20"	
54	8.917-568.0	1	WRAP, OUTER ASSY, 20"	
55	9.802-975.0	1	COVER, BURNER ACCESS, 20" COIL	
56	9.800-033.0	1	LABEL, WARNING, HOT WATER	
57	9.802-911.0	36"	TUBING, ALUMINUM	
58	9.802-178.0	1	VALVE, 1/4" JOMAR, T-91LP, BALL	
59	9.803-616.0	1	VALVE, GAS VR8304	
	9.803-618.0	1	LPG REGULATOR KIT (LP GAS VALVE CONVERSION KIT)	NOT SHOWN
60	8.718-055.0	1	BURNER RING ASSY, X44, W /#54 JETS	
	8.718-060.0	1	BURNER RING ASSY, X44, W /#63 JETS	(LP OPTION)
61	8.718-980.0	6	WASHER, 5/16" FLAT, SAE	
62	8.912-534.0	1	BASE, VNG, SMALL	
63	8.912-541.0	1	BRACE, LEFT SIDE, VNG-S	
64	8.912-540.0	1	BRACE, RIGHT SIDE VNG-S	
65	8.756-121.0	1	WTHRPRF BOX, DEEP, 2GANG, 5-1" OUT.	
	9.802-425.0	6 ft.	CORD, SERVICE 8/3	(4-3A,G) NOT SHOWN
	9.802-436.0	6 ft.	CORD, SERVICE 10/3	(4-2A,G) NOT SHOWN
	9.802-437.0	6 ft.	CORD, SERVICE 10/4	(4-3B, C, H) NOT SHOWN
	9.802-429.0	6 ft.	CORD, SERVICE, 12/4	(4-2B, C, F, H) NOT SHOWN
	9.800-040.0	1	LABEL, GROUND	NOT SHOWN
65	8.718-945.0	2	SCREW, #14 X 3/4", TEK	NOT SHOWN
	9.802-520.0	1	STRAIN RELIEF, 3/4"	NOT SHOWN
	9.802-483.0	1	COVER, 2" X 4", METAL	NOT SHOWN
66	9.802-171.0	1	NIPPLE, 3/4" X 3/8", NPT ST MALE	
67	9.802-146.0	1	SWIVEL, 1/2" MP X 3/4" GHF	
68	8.707-055.0	1	STRAINER, INLET, GARDEN HOSE	

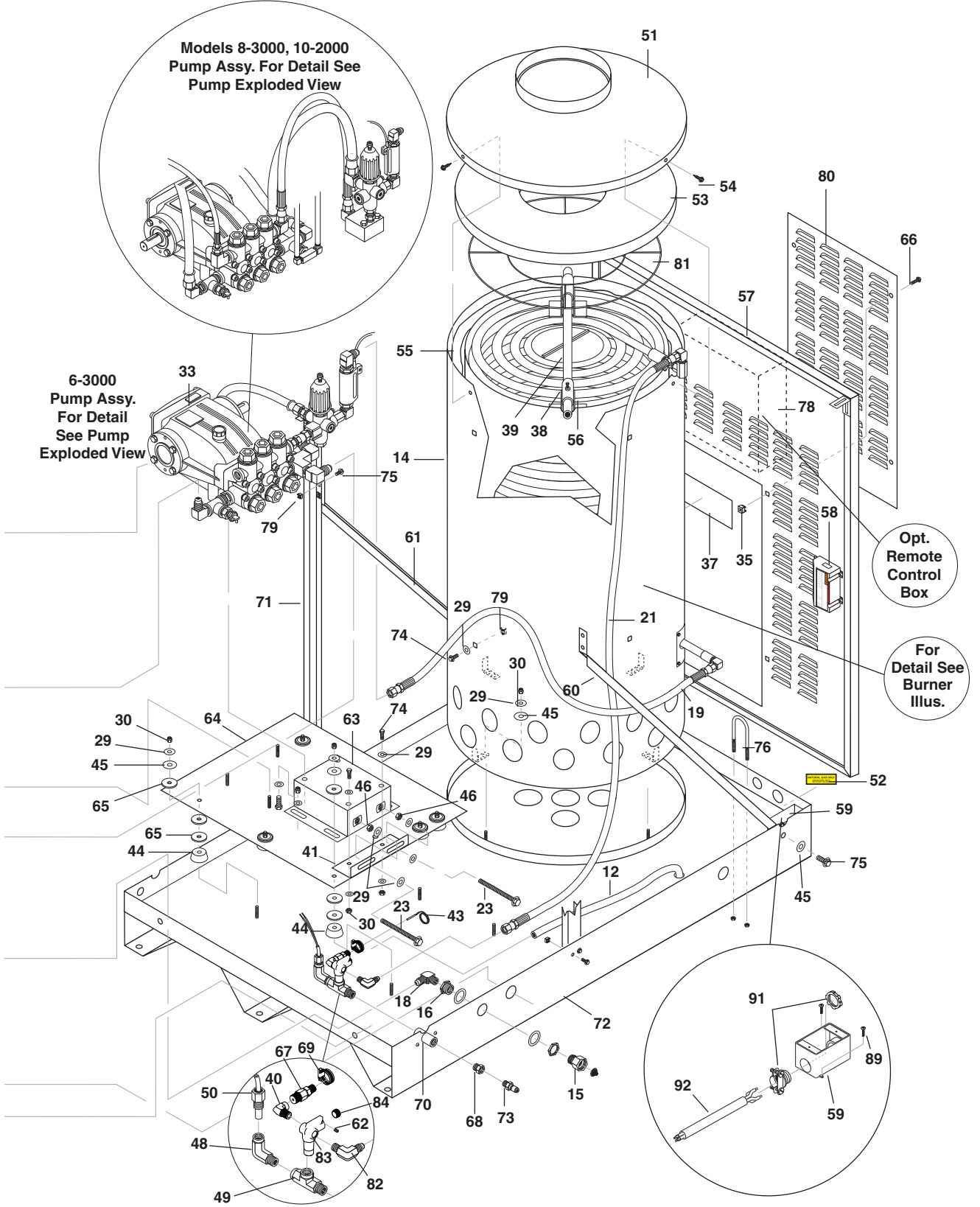
**Landa - 4-2000, 4-3000**

REF	PART NO.	QTY	DESCRIPTION	NOTES
69	8.707-000.0	1	CONNECTOR, 1/2" ANCHOR	
70	9.802-260.0	4 ft.	HOSE 5/8"	
71	9.802-735.0	2	BOLT, 3/8" X 5-1/2" NC HH TAP	
72	9.803-130.0	1	PLATFORM, MOTOR 3/16"	
73	9.803-131.0	1	RAIL, PUMP, GENERAL COMBO	
74	9.802-720.0	16	BOLT, 3/8" X 1" NC HH	
75	9.803-532.0	6	ISOLATOR, 5/16" FEM X FEM	
76	8.912-530.0	1	DISCHARGE ASSY	
	9.804-003.0	2	SCREW, 1/4" X 3/4"	
	9.802-773.0	2	NUT, 1/4" ESNA	
77	9.802-811.0	4	WASHER, 5/16" FENDER	
78	-	-	PUMP	SEE SPECIFICATIONS PAGES
79	8.918-211.0	1	HOSE, 3/8" X 40", 2 WIRE	
80	8.918-424.0	1	HOSE, 3/8" X 25", 2 WIRE	
81	9.803-613.0	1	IGNITION, ELECTRONIC CONTROL	
-	9.802-759.0	4	SCREW, 10/32" X 1/2"	NOT SHOWN
-	9.802-695.0	4	NUT, 10/32" KEPS	NOT SHOWN
82	8.912-538.0	1	PANEL, BURNER END	
83	8.716-269.0	1	BOX, METAL, JUNCTION, 12" X 12" X 4" REMOTE	
84	8.706-022.0	1	NIPPLE, 1" X 6" BLACK PIPE	
85	8.719-959.0	1	PIPE, 1" NPT X 18" BLACK	
86	9.802-018.0	1	NIPPLE, 3/4" X 3" BLACK PIPE	
87	9.802-019.0	3	NIPPLE, 3/4" X 2" PIPE	
88	9.802-020.0	1	NIPPLE, 3/4" X 6" BLACK, PIPE	
89	9.802-026.0	1	ELBOW, 1" BLACK PIPE, 90°	
90	9.802-028.0	1	ELBOW, 1" X 3/4" REDUCING, 90°	
91	9.802-027.0	4	ELBOW, 3/4" BLACK, 90°	
92	9.802-049.0	1	UNION, 3/4" BLACK PIPE	
93	8.710-215.0	44	GAS JET, NG, #52	
-	8.717-377.0	44	GAS JET, LP, #63	



REF	PART NO.	QTY	DESCRIPTION	NOTES
94	9.802-776.0	6	NUT, 5/16" ESNA	
95	9.804-057.0	4	WASHER	
96	8.706-294.0	1	BUSHING, 1/2" X 3/8" STEEL	
97	8.706-109.0	1	NIPPLE, 3/4" X 7", BLACK PIPE	
98	9.802-425.0	4.25 ft.	CORD, SERVICE, SO, 8/3 COLEMAN	(4-3A, G) NOT SHOWN
-	9.802-436.0	4.25 ft.	CORD, SERVICE, SEO, 10/3,COLEMAN	(4-2A, G) NOT SHOWN
-	9.802-437.0	4.25 ft.	CORD, SERVICE, SO, 10/4 COLEMAN	(4-3B, C, H) NOT SHOWN
-	9.802-429.0	4.25 ft.	CORD, SERVICE, SEO, 12/4 COLEMAN	(4-2B,C,F,H;) NOT SHOWN
-	9.802-520.0	1	STRAIN RELIEF, 3/4"	(4-2)
-	9.802-522.0	1	STRAIN RELIEF, 1"	(4-3)
99	9.802-772.0	2	SCREW, 10/32" X 1/4" HEX	
100	9.802-016.0	1	BUSHING, 1" X 3/4"	
101	9.804-058.0	4	BOLT, PUMP MOUNTING	
102	8.718-582.0	2	BOLT 1/4" X 1/2" NC, HH	
103	9.803-559.0	1	CLAMP, SCREW,9/16"W, 1-1/4"OD, SS	
104	9.802-261.0	16"	HOSE, 3/4" PUSH-ON	
105	9.802-792.0	8	NUT, 3/8" X 12 GAUGE, CAGE	
106	8.719-957.0	1	SPLASH GUARD, PILOT LIGHT	
107	9.802-825.0	4	CLIPS, RETAINING	
108	9.802-789.0	2	NUT, 3/8" HEX, NC	
109	9.800-028.0	1	LABEL, PILOT LIGHT	
110	9.802-767.0	2	SCREW, 3/8" X 3/4" HH NC, WHIZ	
111	8.932-963.0	1	LABEL, LIQUID PROPANE	
	8.932-964.0	1	LABEL, NATURAL GAS	
112	8.900-802.0	2	LABEL, VNG LANDA STRIPE	
113	9.802-261.0	26"	HOSE, 3/4" PUSH-ON	
114	9.802-259.0	36"	HOSE, 1/2" PUSH-ON	





**Landa - 6-3000, 8-3000, 10-2000**

REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.912-517.0	2	PANEL, SIDE, SMALL, VNG-L	
2	8.912-515.0	2	PANEL, SIDE, LARGE, VNG-L	
3	9.802-072.0	55 ft.	TRIM, 1/16", W/SPONGE	
4	8.719-066.0	8	LATCH, VISE ACTION	
5	8.912-510.0	1	PANEL, TOP, VNG-L	
6	9.802-793.0	26	NUT, CAGE, 1/4" X 16 GAUGE	
7	8.912-528.0	8	L-BRACKET, VNG	
8	8.912-527.0	1	BRACE, VNG, ELECTRICAL BOX	
9	9.802-802.0	22	WASHER, 1/4", FLAT, SAE	
10	9.802-700.0	22	BOLT, 1/4" X 3/4"	
11	8.903-590.0	1	FLOAT TANK ASSY	
12	9.802-259.0	51"	HOSE, 1/2" PUSH-ON	
13	9.804-082.0	3	WASHER, 1/4" BLACK	
14	8.912-553.0	1	MODULE, WRAP, OUTER, LARGE	
15	9.802-146.0	1	SWIVEL, 1/2" MP X 3/4" GHF	
16	8.707-000.0	1	CONNECTOR, 1/2" ANCHOR	
17	9.802-261.0	15.75 ft.	HOSE, 3/4" PUSH-ON	
18	9.802-132.0	1	ELBOW, 3/4" JIC X 1/2", 90°	
19	8.918-227.0	1	HOSE, 1/2" X 36", 2 WIRE, PRESSURE LOOP	
20	9.800-033.0	1	LABEL, WARNING, HOT WATER	
21	8.918-230.0	1	HOSE, 1/2" X 70", 2 WIRE PRESSURE LOOP	
22	9.802-050.0	2	ADAPTER, 3/4" X 3/4" MT INSERT, 90°	
23	9.802-735.0	2	BOLT, 3/8" X 5-1/2" NC HH	
24	-	-	MOTOR BUSHING	SEE SPECIFICATIONS PAGES
25	-	-	MOTOR PULLEY	SEE SPECIFICATIONS PAGES
26	-	-	BUSHING	SEE SPECIFICATIONS PAGES
27	-	-	PUMP PULLEY	SEE SPECIFICATIONS PAGES
28	-	-	PUMP BELT	SEE SPECIFICATIONS PAGES
29	8.725-394.0	35	WASHER, 3/8" FLAT	(6-3)
-	-	37	-	(8-3, 10-2)
30	8.725-395.0	21	NUT, 3/8" ESNA, NC	(6-3)
-	-	23	-	(8-3, 10-2)
31	-	-	MOTOR	SEE SPECIFICATIONS PAGES
32	9.802-152.0	6	SWIVEL, 3/4" FEMALE, PUSH-ON	
33	-	-	PUMP	SEE SPECIFICATIONS PAGES
34	9.802-695.0	3	NUT, 10/32" KEPS	

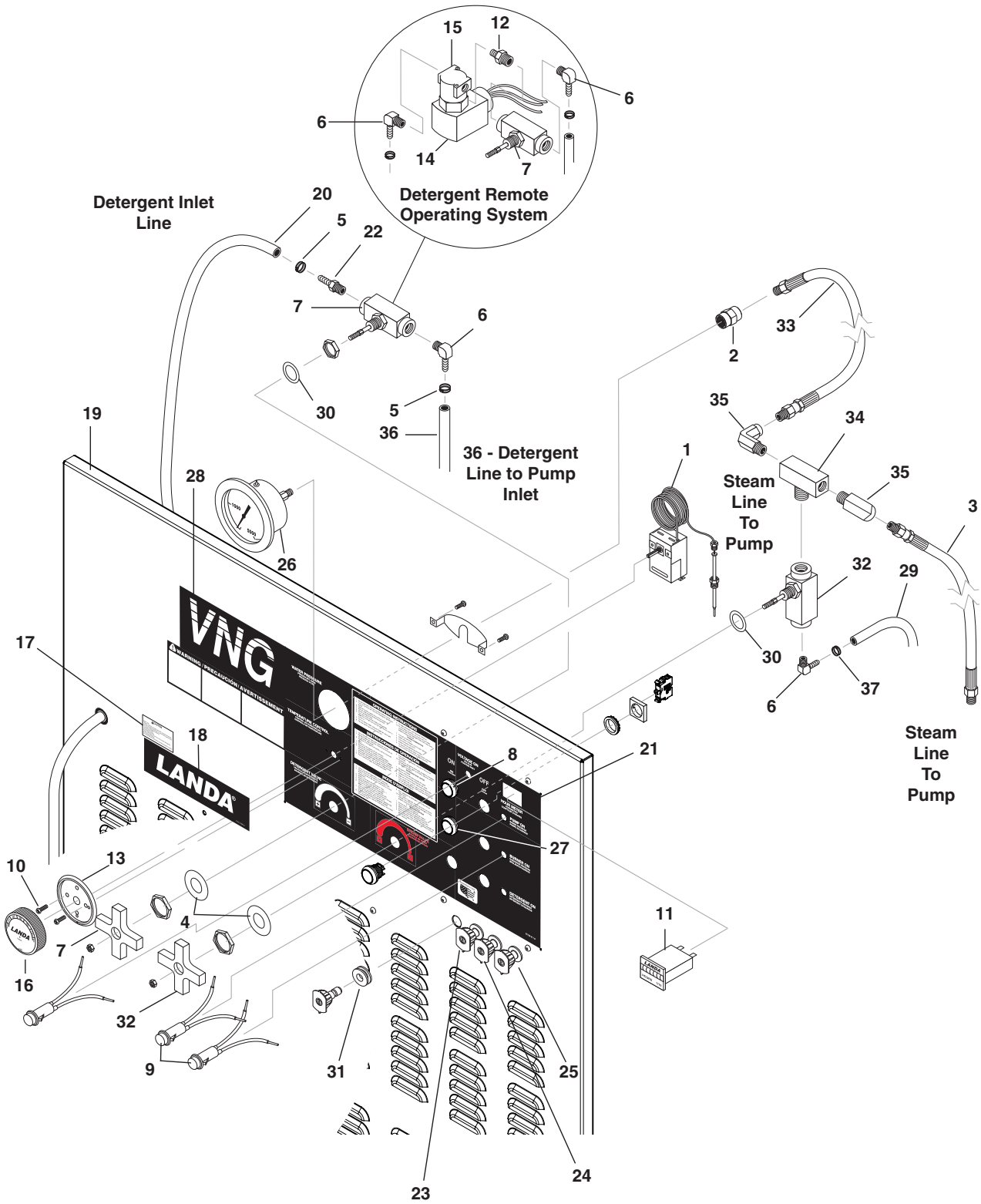
REF	PART NO.	QTY	DESCRIPTION	NOTES
35	9.802-791.0	12	NUT, CAGE, 10/32" X 16 GAUGE	
36	8.900-802.0	2	LABEL, LANDA LOGO	
37	9.800-031.0	1	LABEL, PILOT WARNING LIGHT	
38	8.719-515.0	1	BOLT, 3/8" X 1-1/4" NC, BLACK	
39	8.912-249.0	1	CROSSHANGER, 1", SCH 80	
40	9.802-024.0	1	ELBOW, 3/8" MPT x 1/2" FPT STREET, STEEL	
41	8.912-381.0	1	RETAINER, PUMP TAKE-UP	
42	8.912-512.0	1	PANEL, PULLY ACCESS	
43	8.950-094.0	1	THERMOSTAT, ADJUSTABLE, 302°F	
44	9.802-066.0	7	PAD, FOOT, SOFT RUBBER	
45	9.802-811.0	13	WASHER, 3/8" X 1-1/2" FENDER	
46	9.802-789.0	2	NUT, 3/8" HEX, NC	
47	9.802-771.0	3	SCREW, 10/32" X 3/4" BH SOC	
48	8.706-208.0	1	ELBOW, 1/2" STREET	
49	8.706-236.0	2	TEE, 1/2" STREET 10-2B,10-2C	
50	8.712-187.0	1	SWITCH, SNAP, 275° HI-LIMIT 10-2B, 10-2C	
51	8.912-040.0	1	TOP HAT ASSEMBLY, 30"	
52	8.932-964.0	1	LABEL, NATURAL GAS	
-	8.932-963.0	1	LABEL, LIQUID PROPANE	
53	8.930-141.0	1	INSULATION, TOP HEAD 30"	
54	9.802-799.0	3	SCREW, TEK #14 X 1"	
55	8.717-435.0	1	INSULATION BLANKET, DIE-CUT	
56	8.912-248.0	1	COIL, 25" DIA. VNG-L	
57	8.912-513.0	1	PANEL, BURNER END, VNG-L	
58	9.803-613.0	1	IGNITION, CONTROL ELECTRIC	
-	9.802-759.0	4	SCREW, 10/32" X 1/2"	NOT SHOWN
-	9.802-695.0	4	SCREW, 10/32" KEPS	NOT SHOWN
59	8.716-339.0	1	BOX JUNCTION	(6-3B, 8-3B, H; 10-2B)
-	9.802-484.0	1	BOX, JUNCTION, 3 HOLE	(6-3C, 8-3C, 10-2C,)
-	9.802-426.0	8.5ft	CORD, SERV, 8/4, SEOWW, /FT	6-3C
60	8.912-523.0	1	BRACE, RIGHT SIDE, VNG-L	
61	8.912-521.0	1	BRACE, LEFT SIDE, VNG-L	
62	9.196-012.0	1	SCREW, 10-24 X 1/4"	
63	9.803-131.0	1	RAIL, PUMP	(6-3)
64	8.912-533.0	1	POWER PLATFORM, VNG-L	
65	9.802-067.0	21	BUMPER PAD, ENGINE	
66	9.802-759.0	12	SCREW, 10/32" X 1/2"	
67	8.707-381.0	1	RUPTURE DISC ASSY, 8500#	
68	8.706-294.0	1	BUSHING, 1/2" X 3/8", STEEL	
69	9.803-559.0	1	CLAMP, SCREW, 9/16"W, 1-1/4"OD, SS	

**Landa - 6-3000, 8-3000, 10-2000**

REF	PART NO.	QTY	DESCRIPTION	NOTES
70	8.912-530.0	1	COUPLING, DISCHARGE, VHG	
-	9.804-003.0	2	SCREW, 1/4" X 3/4"	NOT SHOWN
-	9.802-773.0	2	NUT, 1/4" ESNA	NOT SHOWN
71	8.912-519.0	2	VERTICAL BRACE, VNG-L	
72	8.912-509.0	1	BASE, VNG-L	
73	9.802-171.0	1	NIPPLE, 3/8" X 3/8" NPT ST, MALE	
74	9.802-720.0	10	BOLT, 3/8" X 1", NC HH	
75	9.802-767.0	14	SCREW, 3/8" X 3/4", 12 GAUGE	
76	9.802-718.0	1	U-BOLT, 5/16" X 1" PIPE	
77	8.715-933.0	8.25 ft.	CORD, SERVICE, SO. 6/4	(8-3C,10-2C) NOT SHOWN
-	9.802-426.0	8.25 ft.	CORD, SERV, 8/4, SEOWW, /FT	(6-3C) NOT SHOWN
-	9.803-992.0	8.25 ft.	CORD, SERVICE, SO, 4/4	(6-3B,8-3B, H; 10-2B) NOT SHOWN
-	9.802-522.0	1	STRAIN RELIEF, 1"	NOT SHOWN
-	8.756-050.0	1	STRAIN RELIEF, 1-1/4" GREY	(VNG8-3H) NOT SHOWN
-	8.753-429.0	1	LOCKNUT, 1 1/4 ", CONDUIT	(VNG8-3H) NOT SHOWN
78	8.716-269.0	1	BOX, METAL, 12" X 12" X 4"	(OPTIONAL)
79	9.802-792.0	22	NUT, 3/8" X 12 GAUGE, CAGE	
80	8.912-514.0	1	COVER, BURNER ACCESS	
81	8.719-936.0	1	RING, INSULATION RETAINER	
82	9.802-039.0	1	ELBOW, 1/2 JIC X 3/8 MPT	
83	9.149-003.0	1	MANIFOLD COIL OUTLET	
84	8.706-248.0	1	PLUG, 3/8"	
85	8.932-965.0	2	LABEL, WARNING-EXPOSED PULLEYS	
86	8.756-863.0	2	WASHER, REDUCING 1-1/2"-1" CONDUIT	(VNG6-3B/C, VNG8-3B/C, VGN10-2B/C) NOT SHOWN
87	9.804-002.0	3	*WIRE NUT, BLUE	(VNG8-3B, VNG6-3B VNG10-2B) NOT SHOWN
-	8.716-357.0	3	WIRE NUT, WING RED 30652	(VNG8-3C, VNG6-3C, VGN10-2C) NOT SHOWN
88	9.802-483.0	1	COVER, 2" X 4", METAL	NOT SHOWN
89	8.718-945.0	2	SCREW, #14 X 3/4" TEX	
90	9.800-040.0	1	LABEL, GROUND	NOT SHOWN

<b>REF</b>	<b>PART NO.</b>	<b>QTY</b>	<b>DESCRIPTION</b>	<b>NOTES</b>
91	9.802-520.0	1	STRAIN RELIEF, 3/4"	(8-3C,10-2C,)NOT SHOWN
-	9.802-522.0	1	STRAIN RELIEF, 1"	(8-3C,10-2B) NOT SHOWN
-	8.716-565.0	1	STRAIN RELIEF,CG100-850,1"PUR (8/4 CORD)	(6-3C)
-	9.803-975.0	1	STRAIN RELIEF, CG 100-1050, 1" BLK (4/4 COR)	(6-3B, 8-3B/H, 10-2B) NOT SHOWN
92	9.803-992.0	8.5 ft.	CORD, SERVICE, SO, 4/4	(8-3B, H; 10-2B;6-3B) NOT SHOWN
-	8.715-933.0	8.5 ft.	CORD, SERVICE, SO, 6/4	(8-3C, 10-2C) NOT SHOWN

# Control Panel





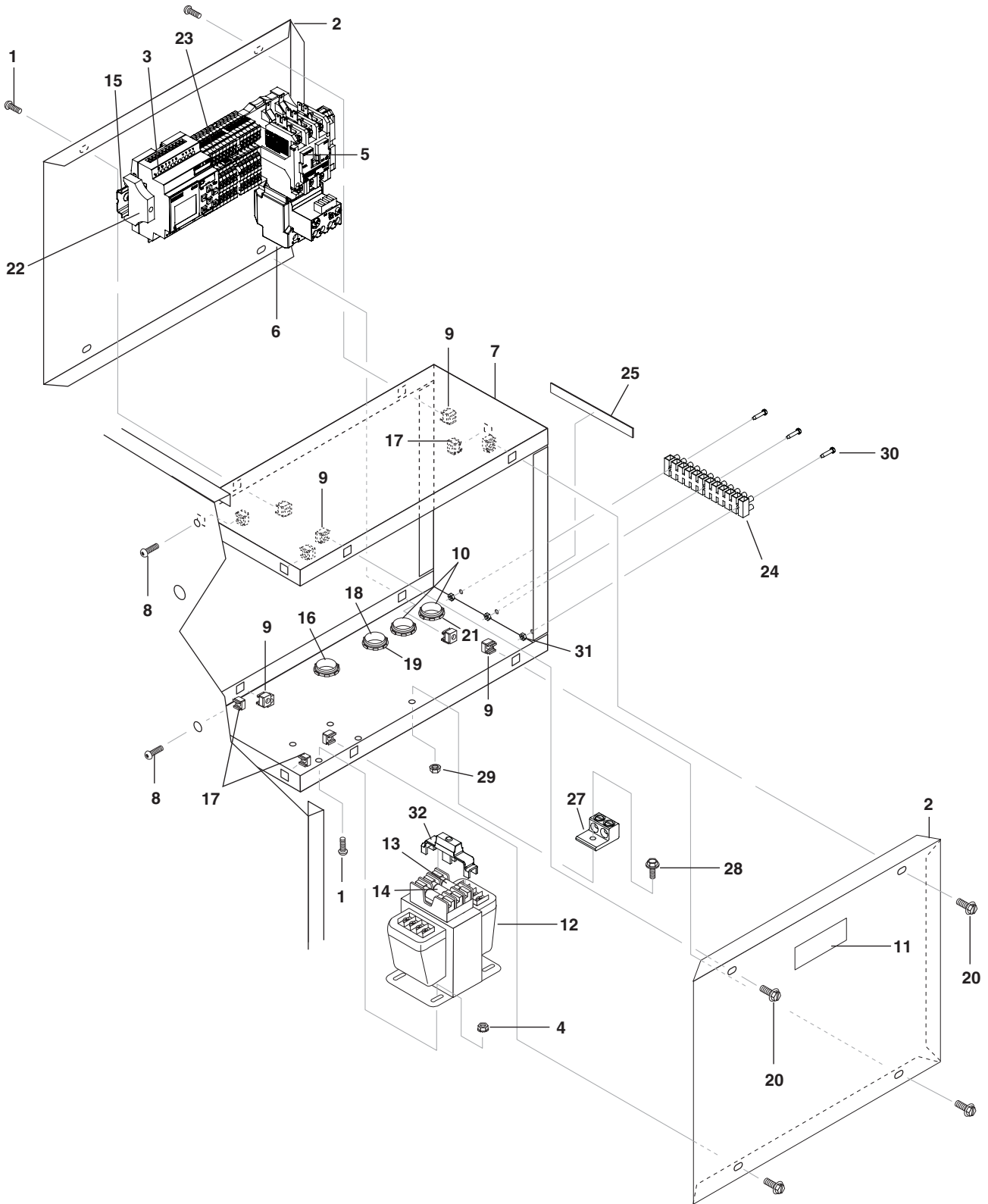
REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.750-094.0	1	THERMOSTAT, 302°	
2	8.705-364.0	1	HEX COUPLING, 1/4" x 1/4" FPT/ 6000PSI	
3	8.918-419.0	1	HOSE, 1/4" X 36", 2 WIRE GA.	(S)
-	8.918-187.0	1	HOSE, 1/4" X 42", 2 WIRE, GAUGE HOSE	(L)
4	9.802-810.0	2	WASHER, 5/8" FLAT	
5	9.802-210.0	2	CLAMP, HOSE, UNI .46 - .54	
6	8.706-958.0	3	HOSE BARB, 1/4" BARB, 90°	
7	8.707-317.0	1	VALVE, CONTROL METERING	
8	8.751-916.0	2	SWITCH GREEN, PUSH BUTTON	
-	8.751-910.0	1	SWITCH, 2 POSITION	(AUTO START OPTION)
9	9.803-652.0	3	LIGHT, INDICATOR, GREEN 28V	
10	8.718-779.0	2	SCREW, 4 MM X 6 MM	
11	9.802-283.0	1	METER, HOUR	
12	8.706-780.0	1	NIPPLE, 1/4" HEX	
13	8.712-190.0	1	BEZEL, THERMOSTAT	
14	9.802-533.0	1	SOLENOID COIL, 120V	(REMOTE)
15	9.802-532.0	1	VALVE, DET. LESS COIL	(REMOTE)
16	8.750-096.0	1	KNOB, THERMOSTAT 302°	
17	9.800-049.0	1	LABEL, MANUF. CLEANING SOLUTION	
18	8.900-832.0	1	LABEL, LANDA STRIPE	
19	8.924-822.0	1	PANEL, CONTROL, VNG-S, SR	
-	8.924-823.0	1	PANEL, CONTROL, VNG-L, SR	
20	9.802-251.0	10 ft.	TUBE, 1/4" X 1/2", CLEAR VINYL	
-	8.707-058.0	1	STRAINER, 1/4" BRASS	NOT SHOWN
-	8.900-260.0	1	LABEL, VLP LEXAN	
21	8.900-808.0	1	LABEL, VNG CONTROL PANEL	
-	8.900-790.0	1	LABEL, VNG CONTROL PANEL	(AUTO START OPTION)
-	8.900-804.0	1	LABEL, VNG CONTROL PANEL	(REMOTE OPTION)
22	8.706-941.0	1	HOSE BARB, 1/4" BARB X 1/4	

## Control Panel

REF	PART NO.	QTY	DESCRIPTION	NOTES
23	8.712-358.0	1	NOZZLE, 15055 YELLOW	(4-2)
-	8.712-350.0	1	NOZZLE, 1504.5 YELLOW	(4-3)
-	8.712-370.0	1	NOZZLE, 1502 YELLOW	(6)
-	8.712-379.0	1	NOZZLE, 1509 YELLOW	(8-3)
-	8.712-387.0	1	NOZZLE, 1515 YELLOW	(10-2)
24	8.712-359.0	1	NOZZLE, 2505.5 GREEN	(4-2)
-	8.712-351.0	1	NOZZLE, 2504.5 GREEN	(4-3)
-	8.712-371.0	1	NOZZLE, 2507 GREEN	(6-3)
-	8.712-380.0	1	NOZZLE, 2509 GREEN	(8-3)
-	8.712-388.0	1	NOZZLE, 2515 GREEN	(10-2)
25	8.712-360.0	1	NOZZLE, 4005.5 WHITE	(4-2)
-	8.712-352.0	1	NOZZLE, 4004.5 WHITE	(4-3)
-	8.712-372.0	1	NOZZLE, 4007 WHITE	(6-3)
-	8.712-381.0	1	NOZZLE, 4009 WHITE	(8-3)
-	8.712-389.0	1	NOZZLE, 4015 WHITE	(10-2)
26	8.712-150.0	1	GAUGE, 0-6000 PSI	
27	8.751-915.0	1	SWITCH, RED, PUSH BUTTON	
28	8.924-843.0	1	LABEL, VNG CONTROL PANEL, SR	
29	9.802-254.0	36"	HOSE, 1/4", PUSH-ON	(SMALL)
-	-	40"	HOSE, 1/4", PUSH-ON	(LARGE)
30	8.719-011.0	2	WASHER, 5/8" STAR	
31	9.802-064.0	4	GROMMET, RUBBER, NOZZLE	
32	8.902-432.0	1	VALVE, METERING STEAM	
33	8.918-180.0	1	HOSE, 1/4" X 16", 2 WIRE GAUGE	
34	8.706-213.0	1	TEE, 1/4" BRANCH MALE, STEEL	
35	8.706-200.0	2	ELBOW, 1/4" STREET	
36	9.802-252.0	36"	TUBE, BRAIDED VINYL	(SMALL)
-	-	41"	TUBE, BRAIDED VINYL	(LARGE)
37	8.709-069.0	1	CLAMP, SCREW	



# Electrical Box VNG



REF	PART NO.	QTY	DESCRIPTION	NOTES
1	9.802-759.0	10	SCREW, 10/32" X 1/2" BHSOC	
2	8.924-858.0	2	PANEL, ELECTRICAL BOX, SIDE	
3	8.755-622.0	1	RELAY, SMART, 24V, 8I/4O	
4	9.802-695.0	6	NUT 10/32 KEPS	
5	-	1	CONTACTOR	SEE SPECIFICATIONS PAGES
6	-	1	OVERLOAD RELAY	SEE SPECIFICATIONS PAGES
7	8.924-857.0	1	BOX, ELECTRICAL VNG	
8	9.804-003.0	4	SCREW, 1/4" X 3/4" BH SOC	
9	9.802-791.0	12	NUT, CAGE 10/32" X 16 GAUGE	
10	8.903-279.0	2	STRAIN RELIEF	(4-2; 4-3B,C,H; 8-3H; 10-2)
-	8.716-565.0	2	STRAIN RELIEF, 1"	(4-3A)(6-3C)
-	8.716-564.0	2	STRAIN RELIEF 1"	(8-3B, C)
-	9.803-975.0	2	STRAIN RELIEF,CG100-1050,1'BLK(4/4 CORD)	(6-3B)
11	9.800-016.0	1	LABEL, POWER DISCONNECT	
12	9.803-662.0	1	TRANSFORMER 100KVA208/230/460-24/115	
13	-	2	PRIMARY FUSE	SEE SPECIFICATIONS PAGES
14	8.716-199.0	1	SECONDARY FUSE, 6.25A	
15	9.802-457.0	10"	DIN RAIL	
16	9.802-518.0	1	STRAIN RELIEF, 3/4"	
17	9.802-793.0	5	NUT, CAGE, 1/4" X 16 GAUGE	
18	9.802-515.0	1	STRAIN RELIEF, 1/2"	
19	9.802-525.0	1	LOCKNUT, 1/2"	
20	9.802-764.0	4	SCREW, 10/32" X 3/4" HEX	
21	9.803-280.0	2	LOCKNUT, 1"	
22	9.804-595.0	2	END BRACKET	
23	8.753-064.0	16	TERMINAL BLOCK	
24	6.643-249.0	1	TERMINAL STRIP	
25	9.801-488.0	1	TERMINAL STRIP	
26	9.800-040.0	1	LABEL, GROUND	NOT SHOWN
27	8.713-086.0	1	GROUND LUG, 2 HOLE	
28	9.802-754.0	1	SCREW, 1/4" X 1/2"	
29	8.718-817.0	1	NUT, 1/4" FLANGE	
30	9.802-784.0	3	NUT, 6-32 KEPS	
31	8.718-733.0	3	SCREW, 6-32" X 5/8"	
32	8.716-449.0	2	COVER, FUSE PROTECTOR	
33	8.749-977.0	3	BAR, JUMPER	NOT SHOWN
34	8.753-252.0	1	TERMINAL BLOCK, END CAP	NOT SHOWN
35	8.716-216.0	1	HOLDER, FUSE	NOT SHOWN
36	8.716-170.0	1	FUSE, MDL-1/2 250V	NOT SHOWN
37	8.921-218.0	1	Q BAR, PLC	NOT SHOWN

## **Electrical Box VNG**

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<b>REF</b>	<b>PART NO.</b>	<b>QTY</b>	<b>DESCRIPTION</b>	<b>NOTES</b>
38	8.753-445.0	1	HARNESS, REMOTE	NOT SHOWN
39	8.924-895.0	1	HARNESS, LIGHT AND SWITCH	NOT SHOWN
40	8.924-896.0	1	HARNESS, CUT LIST	NOT SHOWN
41	8.924-897.0	1	HARNESS, POWER DISTRIBUTION	NOT SHOWN
42	9.802-510.0	5	CABLE TIE, 4" BLACK	NOT SHOWN
43	8.751-913.0	4	BLOCK, CONTACT, N/O M22	NOT SHOWN





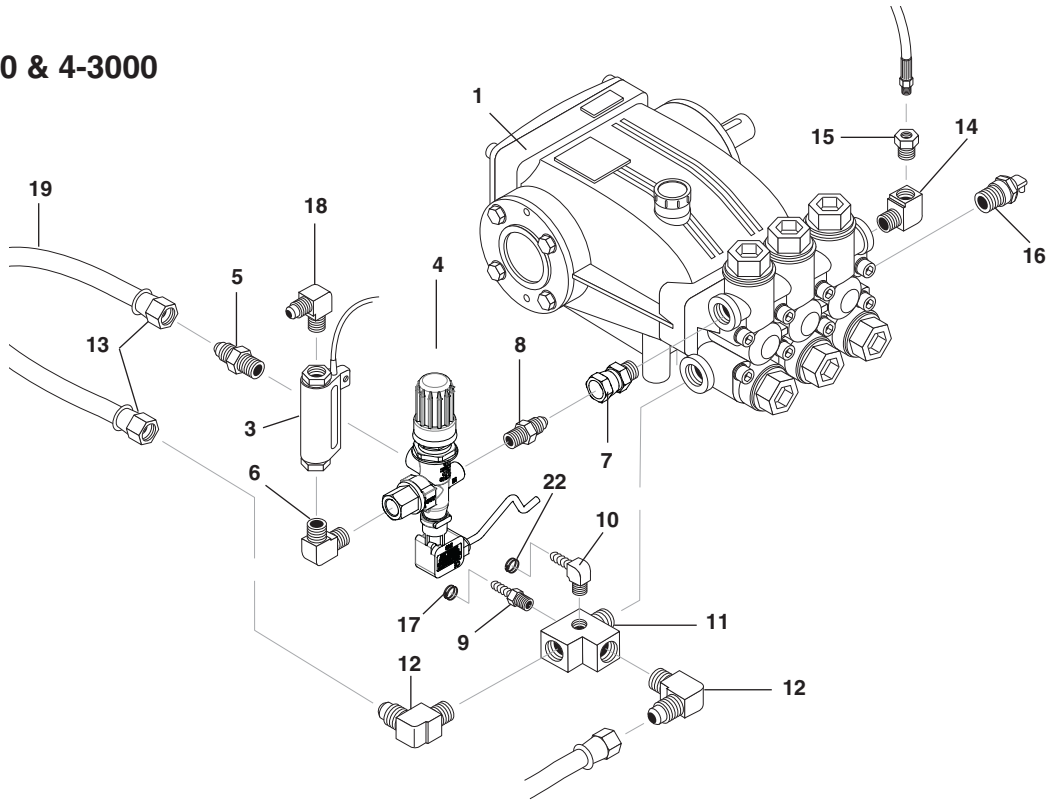


**Burner - VNG 6-3000, 8-3000, 10-2000**

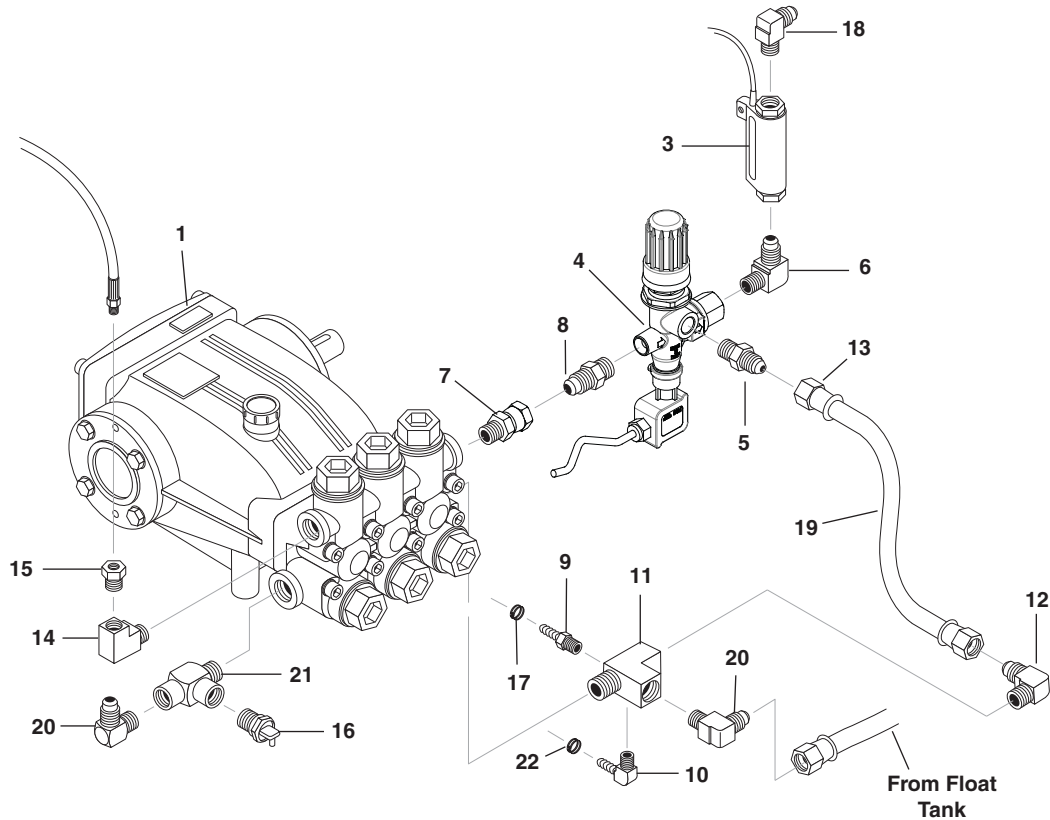
REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.912-553.0	1	MODULE, WRAP, OUTER, LARGE COIL	
2	8.751-384.0	1	BURNER RING X-96 NOZZLES W/# 54 NG	
-	8.749-969.0	1	BURNER RING X-88 NOZZLES W/# 63	(LP OPTION)
3	8.912-550.0	1	DOOR, BURNER, LARGE	
4	9.802-026.0	5	ELBOW, 1", BLACK PIPE, 90°	
5	8.706-777.0	1	NIPPLE, 1/4" CLOSE	
6	8.706-323.0	1	UNION, 1", BLACK PIPE	
7	9.802-772.0	2	SCREW, 10/32" X 1/4" HEX	
8	9.802-040.0	1	ELBOW, 1/2" JIC X 1/2" MPT	
9	9.802-043.0	1	ELBOW, 1/2" JIC X 1/2" FEMALE	
10	9.802-911.0	40"	TUBING, ALUMINUM, 600 RL, 1/4" DEAD SOFT	
11	8.718-062.0	1	VALVE, GAS SHUT-OFF, 1" MPT	
12	9.802-014.0	1	NIPPLE, 1/2" X 3", GALVANIZED	
13	9.802-685.0	1	PILOT,NATURL GAS PILOT A3-S,#77623 2SH60	
14	8.718-050.0	1	VALVE, GAS V8943B1010/B (NG)	
-	8.718-048.0	1	VALVE, GAS, V8943C1018 (LP)	
15	9.802-178.0	1	VALVE, BALL, 1/4" FEMALE X 1/4" FEMALE	
16	8.706-206.0	1	ELBOW, 1" BLACK PIPE, 90°	
17	8.933-009.0	1	GASKET, BURNER PLATE	
18	8.706-021.0	1	NIPPLE, 1" X 12-1/2" SCH40, BLACK PIPE	(VNG 6, 8, 10)
19	9.802-159.0	2	CONNECTOR, 1/4" TUBE X 1/4" MPT	
20	8.912-520.0	1	PLATE, COVER, NG, LM W/HOLE	
21	8.706-857.0	1	TEE, 1/8" STREET	
22	8.706-118.0	3	NIPPLE, 1" CLOSE, 3500 PSI	
23	8.706-047.0	1	BUSHING, PIPE 1 1/4" X 1 BLK	
24	8.706-019.0	2	NIPPLE, 1" X 5" BLACK PIPE	
25	8.706-038.0	1	BUSHING, 1" X 1/2" 3M F/S	
26	8.706-878.0	1	NIPPLE, 1/4" PIPE X 1/8" PIPE	
27	9.803-612.0	1	SOLENOID, PILOT	
28	9.802-719.0	2	U-BOLT, 5/16" X 3", PIPE	
29	9.802-754.0	4	BOLT, 1/4" X 1/2" WHIZ LOC	
30	9.802-794.0	4	NUT, CAGE, 1/4" X 12 GAUGE	
31	8.912-694.0	1	EXTENSION, OUTLET	
32	9.803-132.0	1	PLATE, INSULATION RETAINER	
33	8.706-050.0	2	NIPPLE, 1" X 8" BLACK PIPE	
34	8.719-959.0	1	NIPPLE, 1" X 18" BLACK PIPE	
35	9.802-802.0	2	WASHER, 1/4" FLAT SAE	
36	8.916-932.0	1	SPLASH GUARD, PILOT LIGHT	
37	9.802-798.0	8	SCREW, #10 X 1/2" TEK HEX	

# Pump - VNG 4-2000, 4-3000, 6-3000

## 4-2000 & 4-3000



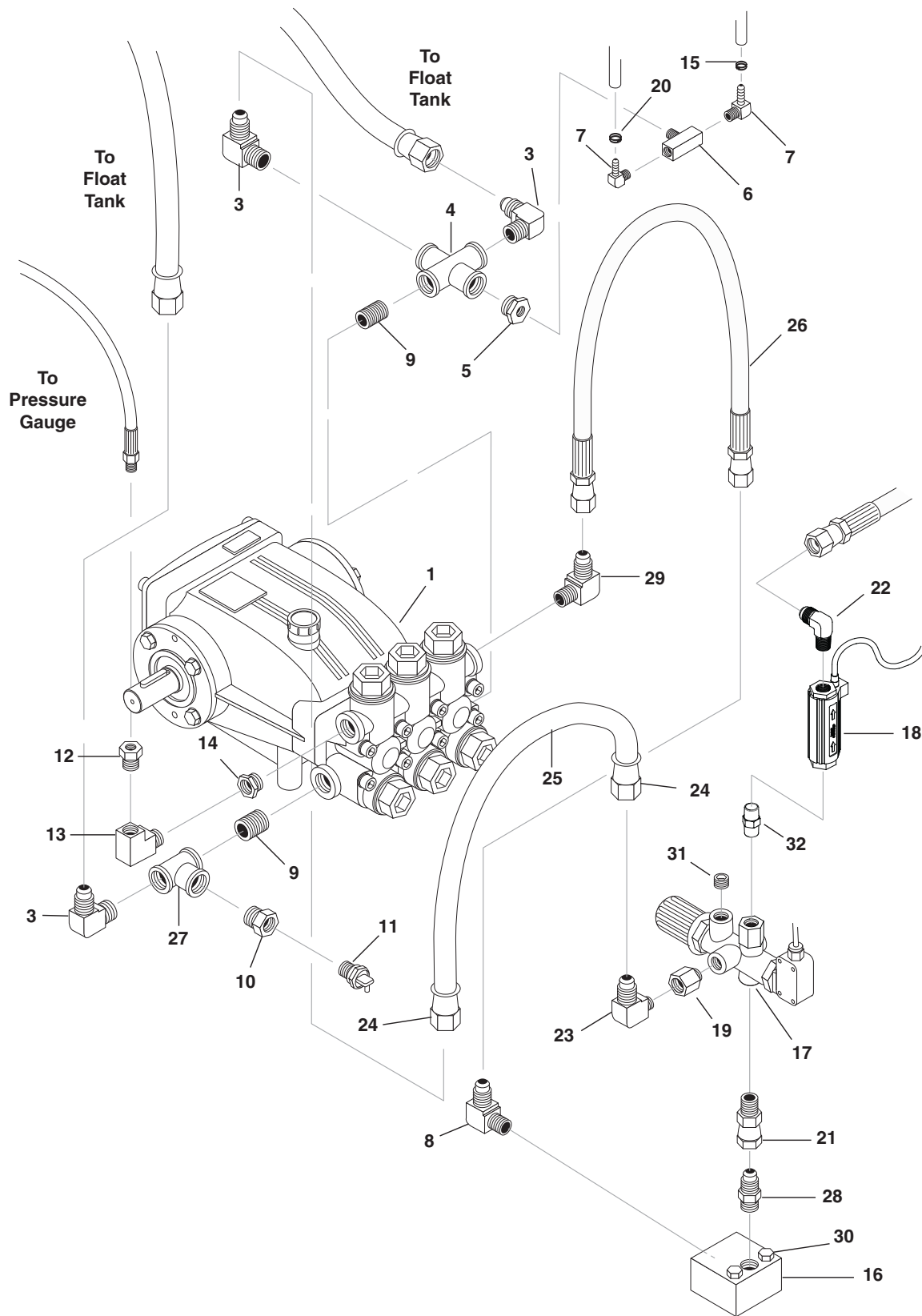
## 6-3000



**Pump - VNG 4-2000, 4-3000, 6-3000**

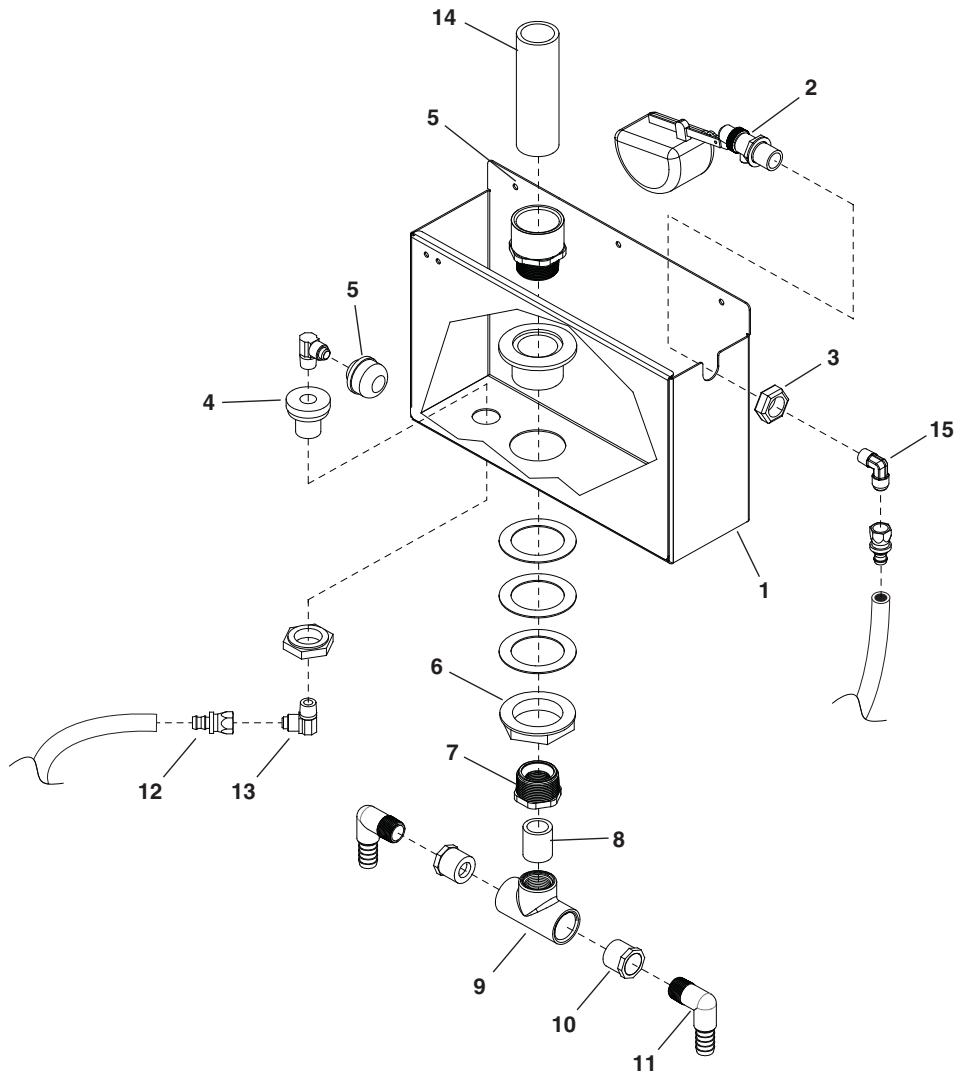
REF	PART NO.	QTY	DESCRIPTION	NOTES
1	-	-	PUMP	SEE SPECIFICATIONS PAGES
2	9.803-131.0	1	RAIL, PUMP	NOT SHOWN
3	8.933-006.0	1	SWITCH, FLOW MV60, YELLOW	
4	9.802-362.0	1	UNLOADER, PA 8 GPM@3650, W/SWITCH	
5	9.802-127.0	1	NIPPLE, 1/2" JIC X 3/8" PIPE	
6	8.706-168.0	1	ELBOW, 3/8", MALE PIPE	
7	9.802-048.0	1	SWIVEL, 1/2" JIC FEM, 3/8" MALE	
8	9.802-037.0	1	NIPPLE, 1/2" JIC, 3/8" FEMALE	
9	8.706-940.0	1	HOSE BARB, 1/4" BARB X 1/8" MALE PIPE	
10	8.706-955.0	1	HOSE BARB, 1/4" X 1/8" 90°	
11	9.803-050.0	1	TEE, 1/2" STREET W/2 HOLES	
12	9.802-131.0	1	ELBOW, 1/2" JIC X 1/2", 90°	(6-3)
-	-	2	ELBOW, 1/2" JIC X 1/2", 90°	(4-2, 4-3)
13	9.802-151.0	2	SWIVEL, 1/2" JIC FEMALE	
14	8.706-207.0	1	ELBOW, 3/8" STREET	
15	8.706-297.0	1	BUSHING, 3/8" X 1/4", GALV.	
16	8.707-256.0	1	PUMP PROTECTOR, 1/2" PTP	
17	6.390-126.0	1	CLAMP, HOSE, .46 -, .54 ST	
18	9.802-039.0	1	ELBOW, 1/2" JIC X 3/8" MALE	
19	9.802-259.0	1.25"	HOSE, 1/2", PUSH ON	
20	9.802-132.0	2	ELBOW, 3/4" JIC X 1/2"	(6-3)
21	8.706-860.0	1	TEES, 1/2" STREET	(6-3)
22	8.709-069.0	1	CLAMP, SCREW, #4	

# Pump - VNG 8-3000, 10-2000

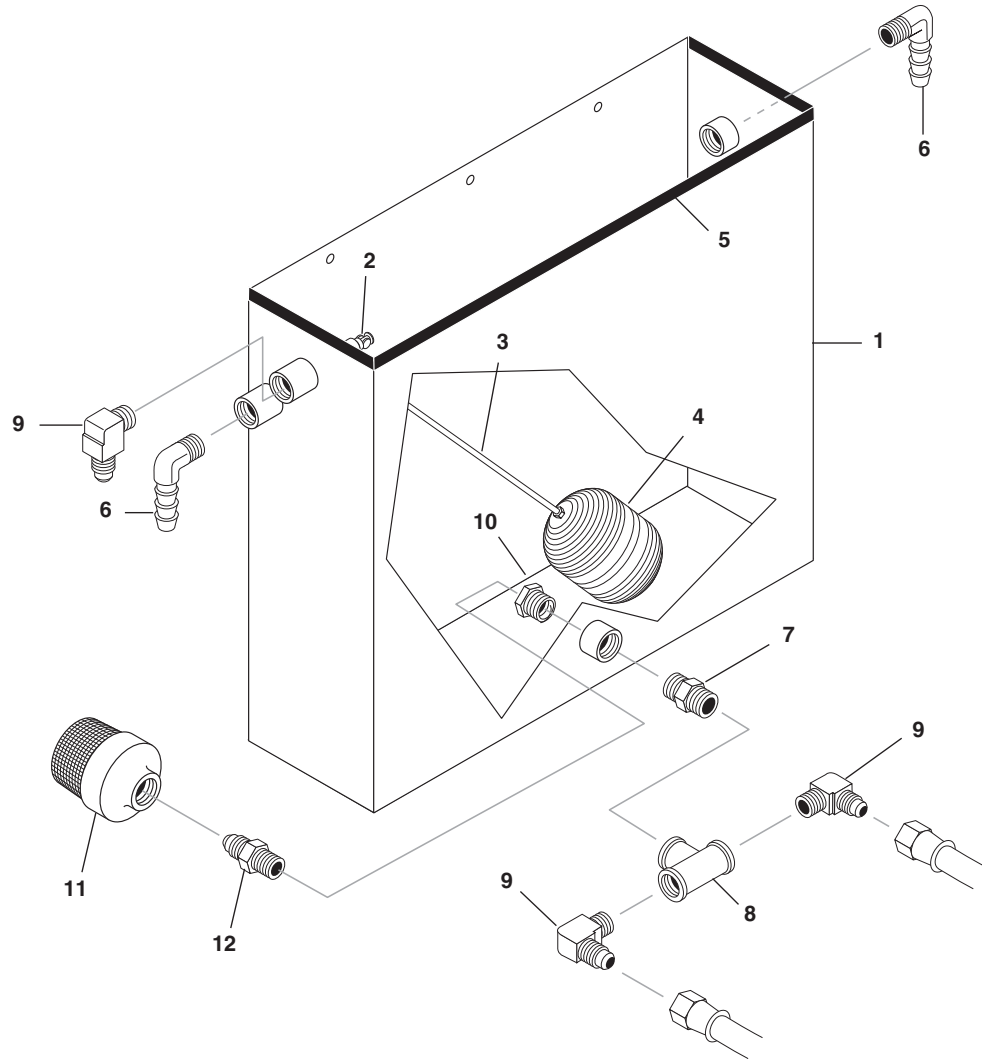


REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.920-590.0	1	PUMP, LANDA LX9536/L	(8-3)
	8.920-592.0	1	PUMP, LANDA LX1036/L	(10-2)
2	8.912-215.0	1	RAIL, PUMP COMBO	NOT SHOWN
3	9.803-557.0	3	ELBOW, 3/4" SAE X 3/4", 90°, BRASS	
4	8.706-852.0	1	CROSS, 3/4" FEMALE PIPE	
5	8.706-923.0	1	BUSHING, 3/4" X 1/4" PIPE	
6	8.706-854.0	1	TEE, 1/4" BRANCH, MALE	
7	8.706-958.0	2	HOSE BARB, 1/4" BARB X 1/4" PIPE, 90°	
8	9.802-039.0	1	ELBOW, 1/2" JIC X 3/8" MPT	
9	8.706-799.0	2	NIPPLE, 3/4" CLOSE	
10	8.706-925.0	1	BUSHING, 3/4" X 1/2" PIPE	
11	8.707-256.0	1	PUMP PROTECTOR, 1/2" PTP	
12	8.706-297.0	1	BUSHING, 3/8" X 1/4", GALV.	
13	8.706-207.0	1	ELBOW, 3/8" STREET	
14	8.706-294.0	1	BUSHING, 1/2" X 3/8"	
15	6.390-126.0	1	CLAMP, HOSE, .46 -, .54 ST	
16	9.802-870.0	1	BLOCK, UNLOADER, 3/8" X 3/8", 1.25 STEEL	
17	8.715-720.0	1	UNLOADER, MG4000, 3000PSI, W/MICR	
18	8.933-006.0	1	SWITCH, FLOW, MV60	
19	8.706-992.0	1	ADAPTER, 1/2" X 3/8"	
20	8.709-069.0	1	CLAMP, SCREW, #4	
21	9.802-048.0	1	SWIVEL, 1/2" JIC FEM X 3/8" MALE	
22	9.802-039.0	1	ELBOW, 1/2" JIC, 3/8", 90°	
23	9.802-132.0	1	ELBOW, 3/4" JIC X 1/2", 90°	(8-3, 10-2)
24	9.802-152.0	2	SWIVEL, 3/4" SAE FEMALE, PUSH-ON	
25	9.802-261.0	2 ft.	HOSE, 3/4" PUSH-ON	
26	8.918-225.0	1	HOSE, 1/2" X 28", 2 WIRE	
27	8.706-846.0	1	TEE, 3/4" FEMALE, BRASS	
28	9.802-036.0	1	NIPPLE, 1/2" JIC X 3/8" MPT, STEEL	
29	9.802-040.0	1	ELBOW, 1/2" JIC X 1/2", 90°	
30	9.802-730.0	2	BOLT, 3/8" X 2 1/2", GR5 ZINC	
-	8.725-394.0	2	WASHER, 3/8" FLAT	NOT SHOWN
-	8.725-395.0	2	NUT, 3/8" ESNA	NOT SHOWN
31	8.706-865.0	1	PLUG, 1/4" NPT COUNTERSUNK	
32	8.705-974.0	1	NIPPLE, 3/8" HEX STEEL P/N-C3069X6	

## Float Tank - VNGS

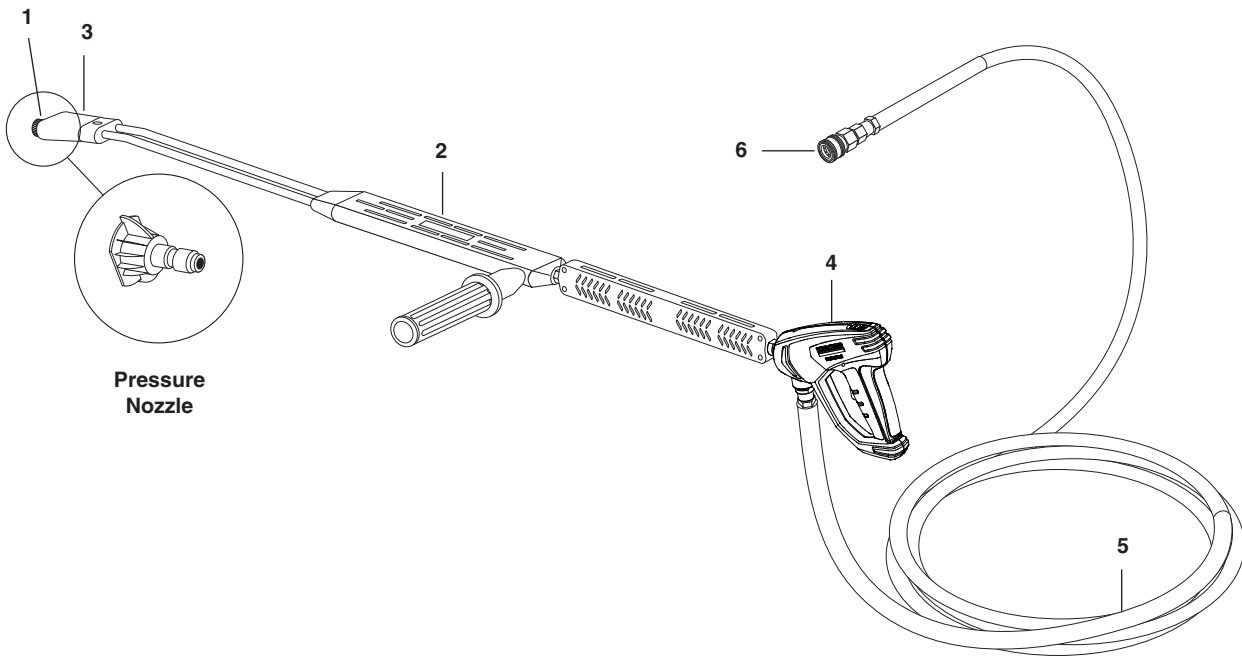


REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.924-756.0	1	TANK, FLOAT SS	
2	8.754-586.0	1	VALVE, FLOAT, W/ADAPTER	
3	8.754-789.0	1	NUT, 1-8, HEX, GRADE A ZINC	
4	8.750-743.0	1	BULKHEAD, 1/2" POLYPRO	
5	8.706-441.0	1	ADAPTER, 1.5" SLIP X MT, PVC 80	
6	8.706-485.0	1	BULKHEAD, 1 1/2', CYC, P/N-SP 1023	
7	8.706-404.0	1	BUSHING, 1 1/2' X 1' MT X FT, PVC 80	
8	8.706-424.0	1	NIPPLE, 1", PVC 80, CLOSE	
9	8.706-432.0	1	TEE, 1" FPT X SLIP X SLIP, PVC 80	
10	8.706-447.0	2	ADAPTER, 1', 3/4' S X FIPT, PVC 80	
11	9.802-050.0	2	ELBOW, 3/4 BARB X 3/4 MPT PVC 90	
12	9.802-151.0	2	SWIVEL, 1/2" BARB X 1/2" JIC, FEM/BRASS	
13	9.802-131.0	2	ELBOW, 1/2" MSAE X 1/2" MPT, BRASS	
14	8.706-367.0	6.48"	PIPE, 1.5", PVC 80, /FT	
15	9.802-129.0	1	ELBOW, 1/2" MSAE X 3/8" MPT, BRASS	



REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.912-518.0	1	ASSEMBLY, FLOAT TANK, S.S.	
2	8.749-329.0	1	VALVE, FLOAT, 3/4"	
3	8.707-025.0	1	STEM, 10" FLOAT	
4	8.706-512.0	1	BALL, FLOAT, BLACK PLASTIC	
5	9.802-071.0	3.25 ft.	TRIM, 750 B2 X 1/16" BLACK	
6	9.802-050.0	2	ADAPTER, 3/4" X 3/4" MT X INSERT 90°	
7	8.706-800.0	1	NIPPLE, 3/4" HEX, BRASS	
8	8.706-846.0	1	TEE, 3/4" FEMALE PIPE	
9	9.803-557.0	3	ELBOW, 3/4" SAE X 3/4", 90°, BRASS	
10	8.706-925.0	1	BUSHING, 3/4" X 1/2" PIPE	
11	8.707-061.0	1	STRAINER, 1/2" BASKET	
12	9.802-128.0	1	NIPPLE, 1/2" JIC X 1/2" PIPE	

# Hose & Spray Gun





REF	PART NO.	QTY	DESCRIPTION	NOTES
1	9.802-165.0	1	COUPLER, 1/4", MALE	
-	9.802-096.0	1	O-RING, SMALL COUPLER, HIGH HEAT, 1/4"	NOT SHOWN
2	8.711-308.0	1	WAND, SS, V.P. WAND, AR W/COUPLER	(AL 344)
-	8.710-722.0	1	WAND ONLY, SS.V.P. WAND, AR	(AL 344)
-	-	1	AL83455VPKIT REPAIR KIT, AR SS SEAT	(AL 334, 344)
3	9.802-286.0	1	NOZZLE ONLY, 1/8"	
4	8.751-234.0	1	GUN, LANDA L1050, 5000 PSI, 10.4 GPM	(8-3, 10-2)
-	4.775-054.0	1	EASY! FORCE ADVANCED KNA	(4-2, 4-3, 6-3)
5	8.739-072.0	1	HOSE, 3/8" X 50', 2-WIRE TUFF-SKIN	(4-2, 4-3, 6-3)
-	8.925-243.0	1	HOSE, 1/2"X50' 2W 5000PSI LAN SWXSO	(8-3, 10-2)
6	9.802-166.0	1	COUPLER, 3/8" FEMALE	
-	9.802-100.0	1	O-RING, LARGE, COUPLER, HIGH HEAT, 3/8"	NOT SHOWN
7	8.707-139.0	1	COUPLER, 1/4"PLUG, MALE, STEEL/ZINC	NOT SHOWN
8	9.802-164.0	1	COUPLER, 1/4"SOCKET, FEMALE, BRASS	NOT SHOWN

## Specifications

### Parts Specification: Landa Pump

Machine Model	Pump Model	Part #	Pulley	Pulley Part #	Bushing	Bushing Part #
4-20024A	LT6036	8.921-712.0	2AK84H	9.802-375.0	25mm	9.802-403.0
4-20024B	LT6036	8.921-712.0	2AK84H	9.802-375.0	25mm	9.802-403.0
4-20024C	LT6036	8.921-712.0	2AK84H	9.802-375.0	25mm	9.802-403.0
4-20024H	LT6036	8.921-712.0	2AK84H	9.802-375.0	25mm	9.802-403.0
4-30024A	LT6036	8.921-712.0	2BK80H	8.715-592.0	25mm	9.802-403.0
4-30024B	LT6036	8.921-712.0	2BK80H	8.715-592.0	25mm	9.802-403.0
4-30024C	LT6036	8.921-712.0	2BK80H	8.715-592.0	25mm	9.802-403.0
4-30024H	LT6036	8.921-712.0	2BK80H	8.715-592.0	25mm	9.802-403.0
6-30024B	LT6036/L	8.921-713.0	3BK70H	8.715-617.0	25mm	9.802-403.0
6-30024C	LT6036/L	8.921-713.0	3BK70H	8.715-617.0	25mm	9.802-403.0
8-30024B	LX9536	8.920-590.0	3BK80H	8.715-618.0	25mm	9.802-403.0
8-30024C	LX9536	8.920-590.0	3BK80H	8.715-618.0	25mm	9.802-403.0
8-30024H	LX9536	8.920-590.0	3BK80H	8.715-618.0	25mm	9.802-403.0
10-20024B	LX1036	8.920-592.0	3BK70H	8.715-617.0	25mm	9.802-403.0
10-20024C	LX1036	8.920-592.0	3BK70H	8.715-617.0	25mm	9.802-403.0

<b>Machine Model Con't</b>	<b>Size</b>	<b>Voltage/PH</b>	<b>Motor Part #</b>	<b>Pulley</b>	<b>Pulley Part #</b>	<b>Bushing</b>
4-20024A	6 HP	230V/1PH	9.802-336.0	2AK46H	8.715-547.0	1-1/8"
4-20024B	6 HP	230V/3PH	8.751-004.0	2AK46H	8.715-547.0	1-1/8"
4-20024C	6 HP	460V/3PH	8.751-004.0	2AK46H	8.715-547.0	1-1/8"
4-20024H	6 HP	208V/3PH	8.756-426.0	2AK46H	8.715-547.0	1-1/8"
4-30024A	8 HP	230V/1PH	8.715-165.0	2BK47H	8.715-582.0	1-3/8"
4-30024B	8 HP	230V/3PH	8.750-999.0	2BK47H	8.715-582.0	1-3/8"
4-30024C	8 HP	460V/3PH	8.750-999.0	2BK47H	8.715-582.0	1-3/8"
4-30024H	8 HP	208V/3PH	8.755-602.0	2BK47H	8.715-582.0	1-3/8"
6-30024B	15 HP	230V/3PH	8.756-429.0	3TB56	8.715-606.0	P1x1-5/8"
6-30024C	15 HP	460V/3PH	8.756-429.0	3TB56	8.715-606.0	P1x1-5/8"
8-30024B	20 HP	230V/3PH	8.756-431.0	3TB60	8.715-607.0	P1x1-5/8"
8-30024C	20 HP	230V/3PH	8.756-431.0	3TB60	8.715-607.0	P1x1-5/8"
8-30024H	20 HP	208V/3PH	8.755-601.0	3TB60	8.715-607.0	P1x1-5/8"
10-20024B	20 HP	230V/3PH	8.756-431.0	3TB64	8.715-609.0	P1x1-5/8"
10-20024C	20 HP	460V/3PH	8.756-431.0	3TB64	8.715-609.0	P1x1-5/8"

## Specifications

### Parts Specification: Landa Pump (Con't)

Machine Model Con't	Bushing Part #	Belt Size/Qty	Belt Part #	Motor Contact	Motor Overload	Stepdown Transformer
4-20024A	9.802-400.0	AX37 (2)	9.802-409.0	8.724-280.0	N/A	9.803-662.0
4-20024B	9.802-400.0	AX37 (2)	9.802-409.0	8.724-275.0	8.724-312.0	9.803-662.0
4-20024C	9.802-400.0	AX37 (2)	9.802-409.0	8.724-269.0	8.724-303.0	9.803-662.0
4-20024H	9.802-400.0	AX37 (2)	9.802-409.0	8.724-280.0	8.724-304.0	9.803-662.0
4-30024A	9.802-401.0	BX36 (2)	8.715-697.0	8.724-283.0	8.724-306.0	9.803-662.0
4-30024B	9.802-401.0	BX36 (2)	8.715-697.0	8.724-280.0	8.724-305.0	9.803-662.0
4-30024C	9.802-401.0	BX36 (2)	8.715-697.0	8.724-269.0	8.724-312.0	9.803-662.0
4-30024H	9.802-401.0	BX36 (2)	8.715-697.0	8.724-275.0	8.724-305.0	9.803-662.0
6-30024B	9.803-980.0	BX50 (3)	8.715-709.0	8.724-283.0	8.724-306.0	9.803-662.0
6-30024C	9.803-980.0	BX50 (3)	8.715-709.0	8.724-280.0	8.757-187.0	9.803-662.0
8-30024B	9.803-980.0	BX54 (3)	8.715-712.0	8.724-283.0	8.724-307.0	9.803-662.0
8-30024C	9.803-980.0	BX54 (3)	8.715-712.0	8.724-283.0	8.757-187.0	9.803-662.0
8-30024H	9.803-980.0	BX54 (3)	8.715-712.0	8.724-283.0	8.724-307.0	9.803-662.0
10-20024B	9.803-980.0	BX52 (3)	8.715-711.0	8.724-283.0	8.724-307.0	9.803-662.0
10-20024C	9.803-980.0	BX52 (3)	8.715-711.0	8.724-283.0	8.724-306.0	9.803-662.0

<b>Machine Model Con't</b>	<b>Primary Fuse</b>	<b>Primary Fuse Part #</b>	<b>Secondary Fuse</b>	<b>Secondary Fuse Part #</b>	<b>Stepdown Transformer</b>
4-20024A	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-20024B	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-20024C	1A	8.713-080.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-20024H	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-30024A	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-30024B	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-30024C	1A	8.713-080.0 (2)	6.25A	8.716-199.0	9.802-553.0
4-30024H	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
6-30024B	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
6-30024C	1A	8.713-080.0 (2)	6.25A	8.716-199.0	9.802-553.0
8-30024B	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
8-30024C	1A	8.713-080.0 (2)	6.25A	8.716-199.0	9.802-553.0
8-30024H	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
10-20024B	2A	8.713-286.0 (2)	6.25A	8.716-199.0	9.802-553.0
10-20024C	1A	8.713-080.0 (2)	6.25A	8.716-199.0	9.802-553.0

## **Burner Specifications**

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<b>MODEL</b>	<b>BURNER ASSEMBLY</b>	<b>JET SIZE</b>	<b>GAS VALVE</b>	<b>PILOT ORIFICE CONVERSION</b>
VNG4-2000	X-44	#54	3/4" VB8304	No
VNG4-3000	X-44	#54	3/4" VB8304	No
VNG6-3000	SQ-98	#54	1" V8943B	No
VNG8-3000	SQ-98	#54	1" V8943B	No
VNG10-2000	SQ-98	#54	1" V8943B	No
VLP4-2000	X-44	#63	3/4" V8943B-393691 LP Kit	No
VLP4-3000	X-44	#63	3/4" V8943B-393691 LP Kit	No
VLP6-3000	SQ-98	#65	1" V8943C	No
VLP8-3000	SQ-98	#65	1" V8943C	No
VLP10-2000	SQ-98	#65	1" V8943C	No

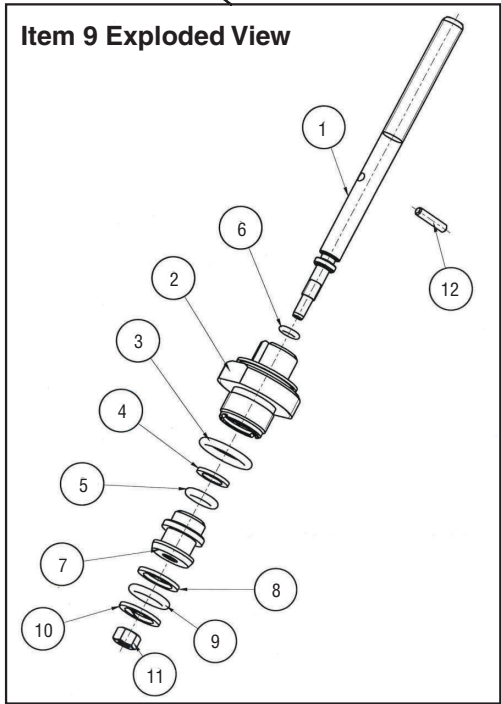
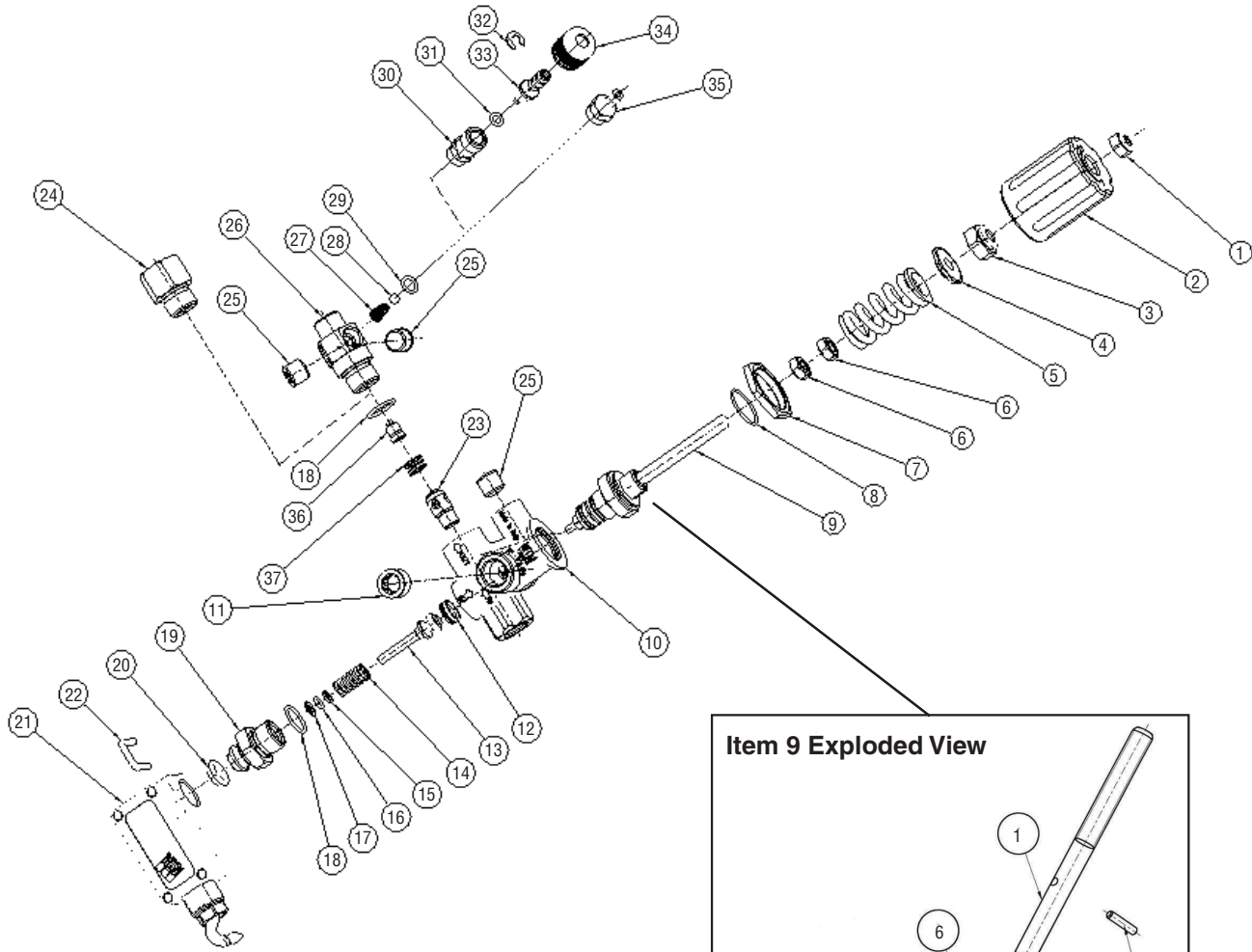
BASED ON 60° F		PROPANE	BUTANE
Formula		C3H8	C4H10
Vaporization Point (°F)		-43.7	31.1
Specific Gravity (Vapor)		1.522	2.006
Specific Gravity (Liquid)		0.508	0.584
Lbs. Per Gallon (Liquid)		4.23	4.87
B.T.U. Per Cubic Foot (Vapor)		2.563	3.39
B.T.U. Per Lb. (Vapor)		21.663	21/3-9
B.T.U. Per Gallon (Liquid)		91.74	1-3/93
Cubic Feet Per Lb. (Liquid)		8.607	7/53
Cubic Feet Per Gallon (Liquid)		3.45	31/9
Octane Number		125	1
Molecular Weight		44.09	58.12
To calculate running cost:			
1 cubic Ft./1,000 B.T.U.			
100 cubic Ft./Therm			
Therm/Hour			
50¢ Therm			
Example:	Using natural gas		
	400,000 BTU Machine		
	400 cubic feet		
	4 Therms/hour		
	4 x .50 = \$2.00/hour to run		

**Pressure Equivalentents**

Simply stated, pressure is the force exerted by a gas or liquid attempting to escape from a container. It is useful to know how strong this “attempt to escape” is. Pressure can be measured with a manometer or with a pressure gauge. At the lower levels, it is expressed in “water column inches” i.e. 1 w.c.i. Higher pressures are expressed in terms of the force exerted against a square inch of area. For example, 125 lbs. per square inch (125 psi).

1 Water Column Inch	=	50 Oz./Sq. In.	11 Water Column Inches	=	6.35 Oz./Sq. In.
11 Water Column Inches	=	4 Lb./Sq. In.	1 Lb./Sq. In.	=	27.71 Water Column Inches
1 Lb./Sq. In.	=	"2.04" Mercury"	"1" Mercury"	=	.39 Lb./Sq. In.
1 Std. Atmosphere	=	14.73 Lbs./Sq. In			

# Unloader - MG4000 w/ Microswitch



REF	PART NO.	QTY	DESCRIPTION	NOTES
1	39.0023	1	NUT	
2	39.0116	2	KNOB	
3	38.0044	1	NUT FOR KNOB	
4	35.0006	1	SPRING RETAINER DISK	
5A	38.0007	1	HIGH PRESSURE SPRING 100 BAR	



REF	PART NO.	QTY	DESCRIPTION	NOTES
5B	38.0006	1	HIGH PRESSURE SPRING 200 BAR	
5C	38.0005	1	HIGH PRESSURE SPRING 275 BAR	
5D	38.0004	1	HIGH PRESSURE SPRING 310 BAR	
6	38.0128	2	NUT	
7	35.0186	1	NUT	
8A	39.0014	1	YELLOW O-RING	
8B	39.0015	1	RED O-RING	
8C	39.0013	1	BLUE O-RING	
8D	39.0012	1	BLACK O-RING	
9	18.0291	1	STEM	
10A	35.0187	1	BODY 1/4"	
10B	35.0174	1	BODY 3/8"	
11A	35.0004	1	1/4" NUT	
11B	35.0003	1	3/8" NUT	
12	36.0114	1	STAINLESS STEEL SEAT	
13	36.0116	1	PISTON	
14	36.0163*	1	SPRING	
15	37.0024*	1	BACK-UP RING	
16	39.0132	1	O-RING, 4.48 X 1.78 MM	
17	36.0176	1	WASHER	
18	39.0016*	2	O-RING, 15.6 X 1.78 MM	
19	35.019	1	NIPPLE	

\* 41.0209 - SPARE PARTS KIT FOR BY-PASS VALVE MG4000 WITH MICROSWITCH (QTY 1)

## **Unloader - MG4000 w/ Microswitch**

<b>REF</b>	<b>PART NO.</b>	<b>QTY</b>	<b>DESCRIPTION</b>	<b>NOTES</b>
20	39.0097*	1	MEMBRANE SEAL	
21	41.012	1	ELECTRIC PART	
22	38.0123	1	FORK	
23	35.0184*	1	NO-RETURN PISTON WITH O-RING	
24	35.0005	1	INJECTOR NIPPLE	
25	35.0004		1/4" NUT	
26	35.0146	1	INJECTOR BODY	
27	36.0161	1	SPRING	
28	36.0182	1	BALL	
29	39.0166	1	O-RING, 5.28X1.78 MM	
30	35.0158	1	HOSE BARB NIPPLE (FOR ADJUSTABLE INJECTOR)	
31	39.014	1	O-RING, 4.48X1.78 MM	
32	38.0116	1	SEEGER	
33	35.0157	1	INJECTOR PISTON	
34	35.0156	1	HOSE BARB FERRULE	
35	35.0147	1	HOSE BARB NIPPLE (FOR ADJUSTABLE INJECTOR)	
36	Various	1	NOZZLE	
37	36.0159*	1	NO-RETURN PISTON SPRING	

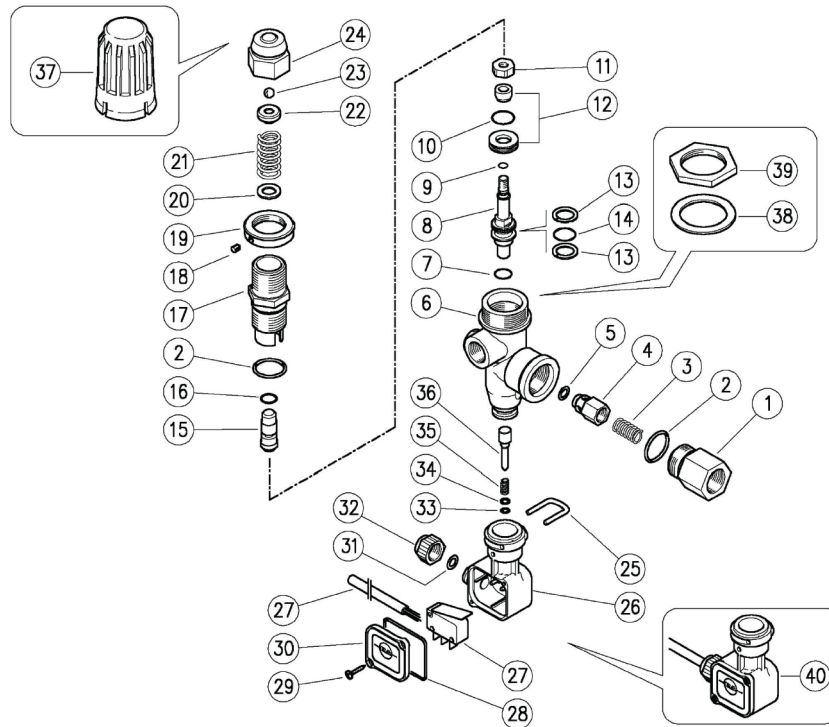
\* 41.0209 - SPARE PARTS KIT FOR BY-PASS VALVE MG4000 WITH MICROSWITCH (QTY 1)

**ITEM 9 PARTS LIST**

REF	PART NO.	QTY	DESCRIPTION	NOTES
1	36.0118	1	STEM	
2	35.0185	1	NIPPLE	
3	39.0164*	1	O-RING 15.54X2.62 MM	
4	39.0066*	1	BACK-UP RING	
5	39.0161*	1	O-RING 7.6X2.62 MM	
6	39.0132	1	O-RING 4.48X1.78 MM	
7	35.0214	1	RETAINING FERRULE	
8	39.0068*	1	BACK-UP RING	
9	39.0163*	1	O-RING 10.78X2.62 MM	
10	39.0065*	1	BACK-UP RING	
11	36.0004	1	NUT M6	
12	39.0263	1	PLUG	

\* 41.0209 - SPARE PARTS KIT FOR BY-PASS VALVE MG4000 WITH MICROSWITCH (QTY 1)

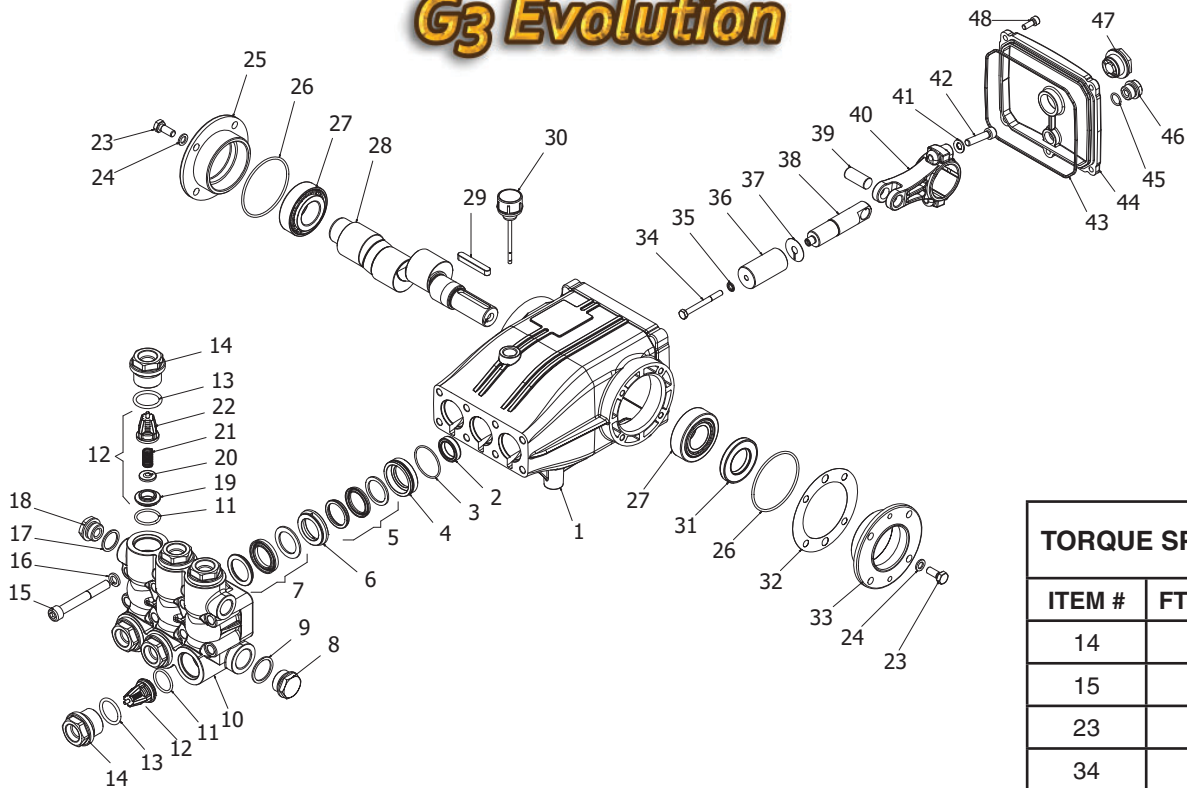
**VB8 Valve, 9.802-362.0 (5-3027)**



REF	PART NO.	QTY	DESCRIPTION	NOTES
1	60.0058.31	1	DELIVERY COUPL., 3/8F BSP BRASS	
2	10.3070.02	2	O-RING 1.78 X 18.77 MM NI 85	
3	60.0053.51	1	SPRING, 0.7 X 9 X 20 MM SST.	
4	60.0052.31	1	SHUTTER PIN, BRASS	
5	10.3070.02	1	O-RING, 3 X 6 MM	
6	60.1201.35	1	HOUSING-BB8, 3/8 M BSP C/SUNK, BRASS	
7	10.3170.08	1	O-RING, 2.62 X 7.6 MM NI 85	
8	60.1206.31	1	PISTON, M6 BRASS	
9	10.3001.01	1	O-RING, 1 X 4 MM NI 85	
10	10.3066.01	1	O-RING, 1.78 X 15.6 MM NI 85	
11	60.1205.31	1	SPECIAL NUT, M6 BRASS	
12	60.2221.20	1	SEAT,10 MM + O-RING, 1.78 MM NBR 85+SHUTT.	
13	10.4021.00	2	BACK-UP RING, OPN. 11.5 X 15.9 X 1.2 MM	
14	10.3175.00	1	O-RING 2.65 X 10.77 MM	
15	60.1204.31	1	SPRING REST PIN, BRASS	
16	10.3167.01	1	O-RING, 2.62 X 5.23 MM NI 85 1	
17	60.1203.31	1	PISTON HOLDER, BRASS	
18	16.2100.00	1	SET SCREW, DIN914M 4 X 4 MM	
19	60.1704.31	1	RING NUT, M22 X 1 BRASS	

REF	PART NO.	QTY	DESCRIPTION	NOTES
20	14.3719.00	1	WASHER, 9 X 15 X 1, 5 MM SST.	
21	60.1208.61	1	SPRING, 3.2 X15.4 X 33 MM Z.PL.	
22	60.1210.31	1	SPRING GUIDING RING	
23	14.7421.50	1	BALL, 1/4" SST.	
24	60.1209.31	1	VALVE REGULATING INSERT, BRASS	
25	29.0087.51	1	U-BOLT, SST.	
26	29.0089.84	2	HOUSING, PR5 PA BLACK	
27	12.5006.00	1	CABLE, 3 X 0.75L.1000 MM + MICROSWITCH	
28	10.3206.01	1	O-RING, 2.62 X 28.25 MM	
29	16.3020.00	2	S/TAPP. SCREW, DIN7981 2.5 X 12MM NICK.PL.	
30	29.0088.84	1	LID, PR5 PA BLACK	
31	10.3169.00	1	O-RING, 2.62 X 6.02 MM	
32	29.0082.84	1	LOCKNUT FOR CABLE GLAND, PA BLACK	
33	10.3038.00	1	O-RING, 1.78 X 3.68 MM	
34	14.3519.53	1	WASHER, 4 X 8 X 0.8 MM SST.	
35	60.2303.51	1	SPRING, 1.1 X 8 X 20 MM SST.	
36	60.1281.31	1	MICRO-SWITCH PISTON, BRASS	
37	60.1202.84	1	VALVE REGULATING KNOB, PA BLACK (1)	
38	14.3582.00	1	WASHER, 30.5 X 42 X 2 MM	
39	60.2254.31	1	RING NUT , M30 BRASS (1)	
40	29.0096.24	1	CASING KIT - PR5, COMPLETE 40 BAR	
<b>K1</b>	60.1212.24	1	REPAIR KIT-VB8. 9 X 1 PCS.	(KIT)
-	60.1290.00	1	-	

# G3 Evolution



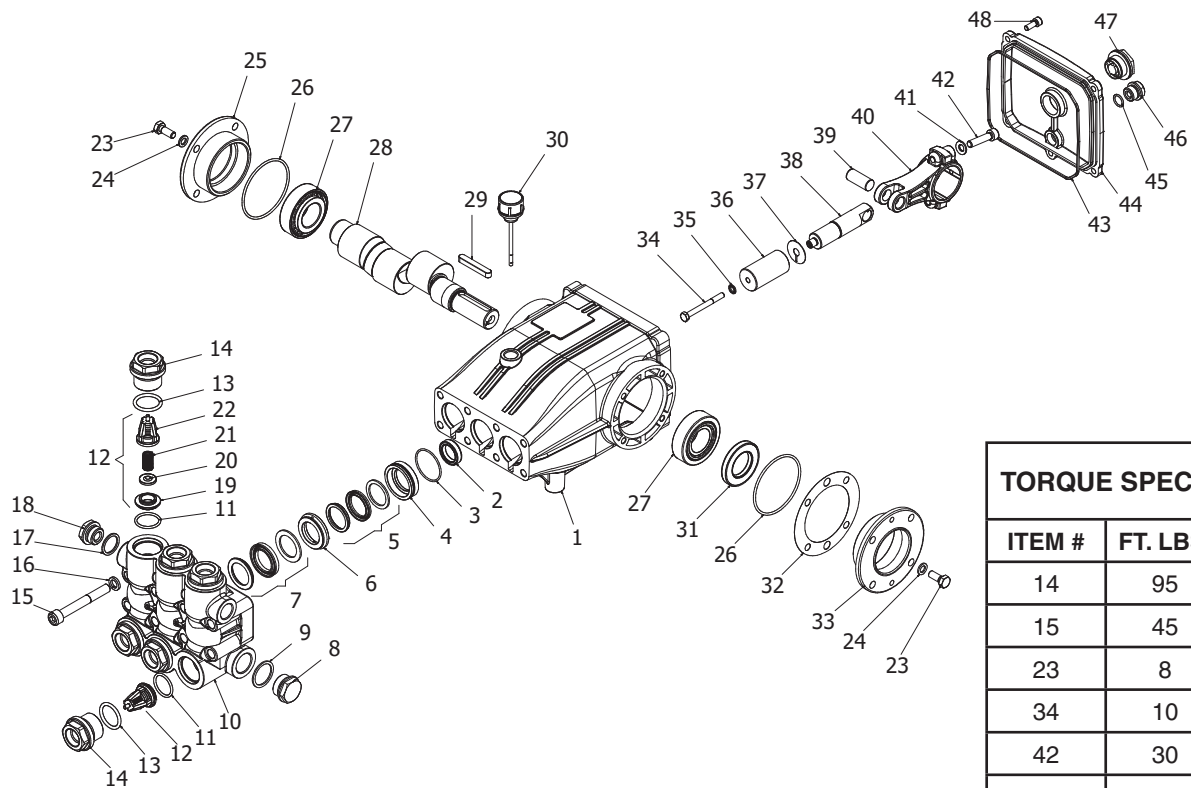
TORQUE SPECS	
ITEM #	FT. LBS.
14	95
15	45
23	8
34	10
42	30
48	8

REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.752-825.0	1	CRANKCASE	
2	-	3	PLUNGER OIL SEAL	SEE KITS TABLE
3	-	3	O-RING Ø1.78 X 37.82	SEE KITS TABLE
4	-	3	PRESSURE RING, 18MM	SEE KITS TABLE
5	-	3	U-SEAL, 18MM	SEE KITS TABLE
6	-	3	INTERMEDIATE RING, 18MM	SEE KITS TABLE
7	-	3	U-SEAL, 18MM	SEE KITS TABLE
8	9.802-926.0	1	BRASS PLUG G1/2	
9	9.803-199.0	1	COPPER WASHER 1/2	
10	8.753-816.0	1	MANIFOLD HOUSING	
11	9.804-498.0	6	O-RING Ø2.62 X 25.1	SEE KITS TABLE
12	-	6	VALVE ASSEMBLY	SEE KITS TABLE
13	9.803-193.0	6	O-RING 3068	SEE KITS TABLE
14	9.802-928.0	6	VALVE PLUG	
15	8.753-817.0	8	MANIFOLD STUD BOLT	
16	9.802-890.0	8	LOCK WASHER	
17	8.719-008.0	1	COPPER WASHER 3/8	

REF	PART NO.	QTY	DESCRIPTION	NOTES
18	8.707-262.0	1	BRASS PLUG 3/8	
19	-	6	VALVE SEAT	SEE KITS TABLE
20	-	6	VALVE PLATE	SEE KITS TABLE
21	-	6	VALVE SPRING	SEE KITS TABLE
22	-	6	VALVE CAGE	SEE KITS TABLE
23	8.752-830.0	8	HEX SCREW	
24	9.802-884.0	8	WASHER	
25	9.803-182.0	1	CLOSED BEARING HOUSING	
26	9.803-186.0	2	O-RING Ø2.62 X 71.12	
27	9.803-160.0	2	ROLLER BEARING	
28	8.753-818.0	1	CRANKSHAFT Ø25	(4540)
-	8.752-827.0	1	CRANKSHAFT Ø25	(6036)
29	9.803-167.0	1	CRANKSHAFT KEY	
30	8.752-834.0	1	OIL DIP STICK	
31	9.803-139.0	1	CRANKSHAFT SEAL	
32	9.803-177.0	2	SHIM	
33	9.803-181.0	1	BEARING HOUSING	
34	8.752-841.0	3	PLUNGER BOLT	SEE KITS TABLE
35	8.752-820.0	3	BONDED SEAL	SEE KITS TABLE
36	8.753-819.0	3	PLUNGER, 18MM	SEE KITS TABLE
37	8.752-823.0	3	COPPER SPACER	SEE KITS TABLE
38	8.753-820.0	3	PLUNGER ROD	
39	8.752-822.0	3	CONNECTING ROD PIN	
40	8.752-821.0	3	CONNECTING ROD	
41	9.802-889.0	6	SPRING WASHER	
42	9.802-937.0	6	CONNECTING ROD SCREW	
43	9.803-194.0	1	O-RING Ø2.62 X 152.07	
44	8.752-826.0	1	CRANKCASE COVER	
45	9.803-906.0	1	O-RING Ø2.62 X 1.78.14.00	
46	8.707-262.0	1	BRASS PLUG G3/8	
47	9.803-202.0	1	SIGHT GLASS G3/4	
48	8.752-824.0	5	COVER SCREW	

KIT NUMBERS	8.753-821.0	8.753-822.0	8.753-823.0	8.753-824.0	8.752-835.0
KIT DESCRIPTION	Plunger Seals 18 mm	Seal Packing 18 mm	Plunger 18 mm	Complete Valve	Plunger Oil Seals
ITEMS NUMBERS INCLUDED	3, 5, 7	3, 4, 5, 6, 7,	34, 35, 36, 37	11, 12, 13	2
NUMBER OF CYLINDERS KIT WILL SERVICE	3	1	1	6	3

## Pump - LX.2 Series



TORQUE SPECS	
ITEM #	FT. LBS.
14	95
15	45
23	8
34	10
42	30
48	8

REF	PART NO.	QTY	DESCRIPTION	NOTES
1	8.752-825.0	1	CRANKCASE	
2	-	3	PLUNGER OIL SEAL	SEE KITS TABLE
3	-	3	O-RING Ø1.78 X 37.82	SEE KITS TABLE
4	-	3	PRESSURE RING	SEE KITS TABLE
5	-	3	U-SEAL, 25MM	SEE KITS TABLE
6	-	3	INTERMEDIATE RING	SEE KITS TABLE
7	-	3	U-SEAL	SEE KITS TABLE
8	9.803-285.0	1	BRASS PLUG, G3/4	SEE KITS TABLE
9	9.803-286.0	1	COPPER WASHER 3/4	
10	8.752-831.0	1	MANIFOLD HOUSING Ø22/Ø20/	
11	8.752-836.0	6	O-RING Ø2.62 X 21.89	
12	-	6	VALVE ASSEMBLY	SEE KITS TABLE
13	9.803-287.0	6	O-RING Ø3.53 X 25.80-134	
14	8.752-855.0	6	VALVE PLUG	
15	8.752-833.0	8	MANIFOLD STUD BOLT	
16	9.802-890.0	8	LOCK WASHER	
17	9.803-199.0	1	COPPER WASHER 1/2	
18	9.802-926.0	1	BRASS PLUG 1/2	



REF	PART NO.	QTY	DESCRIPTION	NOTES
19	-	6	VALVE SEAT	SEE KITS TABLE
20	-	6	VALVE PLATE	SEE KITS TABLE
21	-	6	VALVE SPRING	SEE KITS TABLE
22	-	6	VALVE CAGE	SEE KITS TABLE
23	8.752-830.0	8	HEX SCREW	
24	9.802-884.0	8	WASHER	
25	9.803-182.0	1	CLOSED BEARING HOUSING	
26	9.803-186.0	2	O-RING Ø2.62 X 71.12	
27	9.803-160.0	2	ROLLER BEARING	
28	8.752-829.0	1	CRANKSHAFT Ø25 (9536)	
28	8.752-827.0	1	CRANKSHAFT Ø25 (1036)	
29	9.803-293.0	1	CRANKSHAFT KEY	
30	8.752-834.0	1	OIL DIP STICK	
31	9.803-139.0	1	CRANKSHAFT SEAL	
32	9.803-177.0	2	SHIM	
33	9.803-181.0	1	BEARING HOUSING	
34	8.752-841.0	3	PLUNGER BOLT	SEE KITS TABLE
35	8.752-820.0	3	BONDED SEAL	SEE KITS TABLE
36	8.752-847.0	3	PLUNGER, 22MM	SEE KITS TABLE
37	8.752-823.0	3	COPPER SPACER	SEE KITS TABLE
38	8.752-842.0	3	PLUNGER ROD	SEE KITS TABLE
39	8.752-822.0	3	CONNECTING ROD PIN	SEE KITS TABLE
40	8.752-821.0	3	CONNECTING ROD	
41	9.802-889.0	6	SPRING WASHER	
42	9.802-937.0	6	CONNECTING ROD SCREW	
43	9.803-194.0	1	O-RING Ø2.62 X 152.07	
44	8.752-826.0	1	CRANKCASE COVER	
45	9.803-906.0	1	O-RING Ø2.62 X 1.78.14.00	
46	8.707-262.0	1	BRASS PLUG G3/8	
47	9.803-202.0	1	SIGHT GLASS G3/4	
48	8.752-824.0	5	COVER SCREW	

KIT NUMBERS	8.752-844.0	8.752-850.0	8.752-839.0	8.753-349.0	8.752-835.0
KIT DESCRIPTION	Plunger Seals 22 mm	Seal Packing 22mm	Plunger 22mm	Complete Valve	Plunger Oil Seals
ITEMS NUMBERS INCLUDED	3, 5, 7	3, 4, 5, 6, 7,	34, 35, 36, 37	11, 12, 13	2
NUMBER OF CYLINDERS KIT WILL SERVICE	3	1	1	6	3

**LANDA<sup>®</sup>**

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